Appendix D: Terrestrial and Marine Biological Resources Assessments

D.1 - TERRESTRIAL BIOLOGICAL RESOURCE ASSESSMENT

Michael Brandman Associates

Bakersfield
661.334.2755

Fresno
559.497.0310

Irvine
714.508.4100

Palm Springs
760.322.8847

Sacramento
916.447.1100

San Bernardino
909.884.2255

San Ramon
925.830.2733

November 18, 2008

Rosalinh Ung, Associate Planner
City of Newport Beach
3300 Newport Boulevard
Planning Department
Newport Beach, CA 92658-8915

Subject: **Terrestrial Biological Resource Assessment**
Marina Park Project, Newport Beach, Orange County, CA

Dear Ms. Ung:

At the request of the City of Newport Beach, Michael Brandman Associates (MBA) conducted a biological resources assessment to document the existing conditions within the approximately 10-acre Marina Park property, hereafter referred to as project site or site, located in the City of Newport Beach, Orange County, California. This report provides a description of existing conditions. The information contained herein is intended to provide a baseline from which subsequent evaluations can be made of potential biological resource impacts associated with future projects, based upon environmental policies and regulations including the Clean Water Act (CWA), the Federal Endangered Species Act (ESA), the California Endangered Species Act (CESA), California Environmental Quality Act (CEQA), and the California Coastal Act (CCA) the Central/Coastal Orange County Natural Communities Conservation Plan and Habitat Conservation Plan (NCCP/HCP). It should be noted that this document only provides an assessment of the terrestrial habitat and does not include a project specific impact analysis or an assessment of the marine habitat.

Summary

The existing land use on the site includes residential development (i.e. mobile homes), community service facilities (i.e. public park, American Legion building), and paved parking lots. The existing development does not provide suitable habitat for any sensitive species and is not considered a wildlife movement corridor. A public beach defines the northern property boundary and is comprised of highly disturbed beach sand. The adjacent Newport Harbor represents potentially suitable nursery habitat for marine life, which is addressed separately in the Marine Resources Assessment. Vegetation on the site is entirely ornamental including non-native trees and shrubs that provide potential nesting habitat for migratory birds. A nesting bird survey is required prior to removal of vegetation on the site, to reduce the potential for nest failure during the nesting season. Newport Harbor is a Traditionally Navigable Water and is under the jurisdiction of the U.S. Army Corps of Engineers (USACE), the Regional Water Quality Control Board (RWQCB), and the City of Newport Beach Coastal Land Use Program (CLUP).

Site Location

The project site encompasses approximately 10 acres, and is located in the southwestern portion of the City of Newport Beach in Orange County, California as shown

on Exhibit 1. It can be found on the Newport Beach, California, United States Geological Survey (USGS) 7.5-minute topographic quadrangle map, Section 33 of Township 6 South, Range 10 West (Exhibit 2). The site is specifically located north of West Balboa Boulevard, south of Newport Harbor east of 19th Street and west of 15th Street as shown in Exhibits 3.

Methodology

Prior to the field visit, MBA reviewed available literature and maps to evaluate the potential for sensitive biological resources to occur in the vicinity of the project site. This included a review of topographic maps, aerial photography, and sensitive species databases. A list of sensitive plant and wildlife species recorded in the vicinity of the site was completed from the California Department of Fish and Game's (CDFG) California Natural Diversity Database (CNDDB) and California Native Plant Society Electronic Inventory (CNPSEI). Additional review included literature detailing the habitat requirements of sensitive plant and wildlife species that potentially occur in the project area.

Subsequently, a reconnaissance-level field survey was conducted. The primary objective of the survey is to document existing site conditions and determine the potential presence of sensitive species that require a significance analysis pursuant to CEQA including but not limited to species formally listed as threatened and/or endangered under the ESA and CESA, California Species of Special Concern, designated as Fully Protected by CDFG; given a status of 1A, 1B, or 2 by the CNPS, or designated as sensitive by City, County, or other regional planning documents.

Special attention was focused on the potential suitability of the site for light-footed clapper rail (*Rallus longirostris levipes*), California least tern (*Sternula antillarum browni*), coastal California gnatcatcher (*Polioptila californica californica*), western snowy plover (*Charadrius alexandrinus nivosus*), southern tarplant (*Centromadia parryi ssp. Australis*), Coulter's saltbush (*Atriplex coulteri*), Davidson's saltscale (*Atriplex serenana var. davidsonii*), estuary seablite (*Suaeda esteroa*), and mud nama (*Nama stenocarpum*). Each of these sensitive species of animals and plants are known to occur in the region and thus must be assessed regarding their potential presence.

The reconnaissance-level field survey was conducted on July 10, 2008, between 11:00 and 14:00. Weather conditions during the field survey included temperatures ranging from 70 to 75 degrees Fahrenheit, with an 80% cloud cover and winds between 2 and 10 miles per hour.

Environmental Setting

The existing site encompasses 10.45 acres and includes 1) an American Legion Community Building with an associated lawn, marina and parking lot; 2) Las Arenas community park including a children's play area, four tennis courts, and a public beach; 3) a 57-space mobile home park with an associated parking lot; and 4) a limited amount subtidal coastal wetland located immediately off-site. Surrounding land uses include the Newport Harbor to the north, residential housing to the east, West Balboa Boulevard to the south, and residential and commercial uses to the west. The proposed project entails the development of the Balboa Center Complex, a marina, and public use beach.

Topographic Features

Topographically, the project site is located on the coast at the southern end of Newport Harbor. The site is relatively flat except where the public beach slopes to the water. The project site has an elevation range of 5 to 8 feet above sea level.

Plant Communities/Land use

The plant communities and land uses on the site include disturbed/developed areas, ornamental landscaping, turf, sandy beach, and intertidal coastal wetland; subtidal coastal wetland is located

immediately off-site. No sensitive plant communities or suitable habitat for sensitive plants are present on the site. Vegetation on the site is exclusively ornamental landscaping between structures, in parkways and around public use areas (Exhibit 4). Table 1 below provides a summary of the plant community and land use acreages. Representative photos of the communities can be found in Exhibit 5.

Table 1: Plant Community/Land Use Acreages

Plant Community/Land Use	Area (acres)
Disturbed/Developed	7.05
Ornamental	0.70
Turf	0.40
Sandy Beach	1.00
Intertidal Coastal Wetland	1.20
Subtidal Coastal Wetland	0.10
Total	**10.45**

Disturbed/Developed (7.05 Acres)

Disturbed/developed land use includes any form of human disturbance, especially in cases of permanent impacts to natural communities, and comprises 7.05 acres of the property. By definition, disturbed areas include dirt roads, off-highway use, pavement, concrete, buildings and structures, bridges, agricultural activities, and permanent flood control measures. Disturbed/developed areas on the site include roads, a 56-space mobile home park and associated parking, a metered 21-stall surface parking lot, and Las Arenas Park, which includes the Balboa Community Center/Girl Scouts House, a children's play area, and four public tennis courts.

Ornamental (0.70 Acre)

Several individual specimens of white bottlebrush (*Callistemon salignus*), weeping fig (*Ficus benjamina*), Peruvian pepper (*Schinus molle*) and ornamental palm trees are scattered throughout the property for landscaping purposes. A hedge of ornamental shrubs is also present between the public beach and the mobile home park, and a line of ornamental palm trees lines the sidewalk that borders the public beach. These individual trees and landscaped areas of ornamental vegetation are not associated with any native vegetation and provide only limited habitat value, primarily as cover and perching areas for birds and common terrestrial wildlife that are normally found in and associated with developed areas. The scattered ornamental landscaping covers a total of 0.70-acre of non-native vegetation.

Turf (0.40 Acre)

Turf includes any form of grass lawn and comprises 0.40-acre of the property. By definition, turf includes areas that are covered with grass, regularly mowed, and artificially irrigated. A long strip of turf extends between the sidewalk and the tennis courts along West Balboa Boulevard, and several patches of turf are scattered between the mobile homes.

Sandy Beach (1.00 Acre)

Sandy beach habitat includes any unvegetated coastal area comprised exclusively of sand, and covers 1.00 acre of the property. Sandy beach can be subject to high energy wave action or, as in this case, can be located in a sheltered location with low energy wave action. By definition, this area includes the sandy shore adjacent to Newport Harbor that is subject to wave action. The strand of beach is approximately 60 feet wide and runs along the northern portion of the property for approximately 1,400 linear feet.

Intertidal Coastal Wetland (1.20 Acres)

Intertidal coastal wetlands are located immediately seaward of Sandy Beach habitat. Intertidal coastal wetlands are generally located in sheltered areas such as bays and estuaries, and form when mud and marine animal detritus are deposited by tides. Sediment in this habitat is subject to the ebb and flow of the tide, and is therefore submerged and exposed twice a day. Coastal wetland sediments may support algae, marine grasses, benthic invertebrates, and benthic fishes. Coastal wetland habitat covers 1.20 acres of the property. By definition, this area includes the intertidal shore between +7 feet MSL and -2 feet MSL adjacent to the sandy shore.

Subtidal Coastal Wetland (0.10 Acre)

Subtidal coastal wetlands are located immediately seaward of Intertidal Coastal Wetland habitat and are constantly submerged. Subtidal coastal wetlands include 1) deepwater habitats dominated by plants that grow on or below the surface of the water, 2) areas where sediment particles are generally smaller than stones and vegetative cover is less than 30-percent, and 3) areas with man-made or natural reef systems dominated by sessile invertebrates. Subtidal coastal wetland habitat is not present within the site boundary, but is present within a 0.10 acre off-site area immediately adjacent to the project site.

Wildlife

The plant communities discussed above provide marginally suitable foraging habitat for a few local terrestrial wildlife species, all of which are urban-adapted, and no sensitive wildlife or suitable habitat for sensitive wildlife are present on the site.

Invertebrates observed within the project site include sand fleas (insects in the family *Ceratopogonidae*), beached moon jellies (*Aurelia aurita*), and sand crabs (*Emerita talpoida*). The project site contains shallow marine habitat that provides potentially suitable habitat for several marine fish. The Marine Resource Assessment will include a detailed description of marine invertebrate and fish species on site. No amphibian or reptile species were observed during the field survey, and none are expected to occur due to lack of suitable habitat. The ornamental trees and shrubs on the project site provide suitable foraging and perching habitat for passerine birds, and the stretch of calm beach provides suitable foraging habitat for shore birds. Birds observed on site are urban-adapted and include house sparrow (*Passer domesticus*), house finch (*Carpodacus mexicanus*), American crow (*Corvus brachyrhynchos*), mourning dove (*Zenaida macroura*), snowy egret (*Egretta thula*), brown pelican (*Pelecanus occidentalis*), and gull-billed tern (*Sterna nilotica*). No mammals were observed during the field survey, however, feral dogs and cats, and opossums can be expected to occur on the site.

Special Status Species

The following federally or state listed species are reported to occur within the vicinity of the site and were evaluated for their potential to occur on-site: light-footed clapper rail (*Rallus longirostris levipes*), California least tern (*Sternula antillarum browni*), coastal California gnatcatcher (*Polioptila californica californica*), western snowy plover (*Charadrius alexandrinus nivosus*), southern tarplant (*Centromadia parryi ssp. Australis*), Coulter's saltbush (*Atriplex coulteri*), Davidson's saltscale (*Atriplex serenana var. davidsonii*), estuary seablite (*Suaeda esteroa*), mud nama (*Nama stenocarpum*), chaparral sand-verbena (*Abronia villosa var. aurita*).

No federally or state listed species are present on the site, and no suitable habitat for any federally or state listed species is present on the site, therefore, no further action is required pursuant to the ESA or the CESA. Additionally, no species or habitat protected under the Orange County Coastal-Central NCCP/HCP are present on the site, therefore, no further action is required pursuant to the NCCP/HCP. Therefore, implementation of the proposed project will not have significant impacts on any special status or sensitive plant communities, special status or sensitive plants, or special status or sensitive species.

Nesting Birds

The project site contains several ornamental trees and shrubs that provide marginally suitable nesting habitat for migratory birds. Therefore, pursuant to the MBTA and CFG Code, removal of any trees, shrubs, or any other potential nesting habitat should be conducted outside the avian nesting season. The nesting season generally extends from early February through August, but can vary slightly from year to year based upon seasonal weather conditions. Any activity that may potentially cause a nest failure, requires a biological monitor, therefore, a pre-construction nesting bird survey will be required prior to any vegetation removal or ground disturbance activities to determine if nesting activity occurs onsite.

If active nests are observed, construction activity must be prohibited within a buffer around the nest, as determined by a biologist, until the nestlings have fledged. Construction activity may encroach within the designated buffer at the discretion of the biological monitor. Once the nestlings have fledged, construction activity may proceed.

Wildlife Movement Corridors

The project site does not provide wildlife movement corridors. Opossums, and feral cats and dogs can be expected to travel though the site and surrounding developed areas, but the site does not provide narrow connectivity between large areas of open space on a local or regional scale; therefore, implementation of the project will not have significant impacts on wildlife corridors.

The portion of the site included in Newport Harbor, may provide suitable nursery habitat for fish and marine resources, which will be addressed in the Marine Resource Assessment.

Jurisdictional Waters and Wetlands

Based upon MBA's jurisdictional assessment during the field survey, the project site overlaps with Newport Harbor, a traditionally navigable water that is considered jurisdictional by regulatory agencies. A Delineation of Jurisdictional Waters and Wetlands is required in order to document potential impacts to any waters or wetlands that may require a permit. Based upon this assessment for the proposed project site, the shallow marine habitat within Newport Harbor that overlaps with the project site boundary and areas immediately off-site, falls under the jurisdiction of the USACE pursuant to Section 10 of the Rivers and Harbors Act, RWQCB pursuant to Section 401 of the CWA, and the City of Newport Beach CLUP pursuant to the CCA.

Conclusion

Pursuant to CEQA, no significant impacts to terrestrial biological resources on site will occur as a result of the proposed project; findings regarding impacts to marine biological resources will be discussed in the Marine Resource Assessment under a separate cover.

If you have any questions, please feel free to contact me at 714-508-4100.

Sincerely,

Diana Lloyd
Regulatory Specialist/Biologist
Michael Brandman Associates
220 Commerce, Suite 200
Irvine, CA 92602

Enc: Exhibit 1 – Regional
Exhibit 2 – Vicinity topographic base
Exhibit 3 – Vicinity aerial base
Exhibit 4 – Vegetation/Land Use Map
Exhibit 5 – Site Photographs

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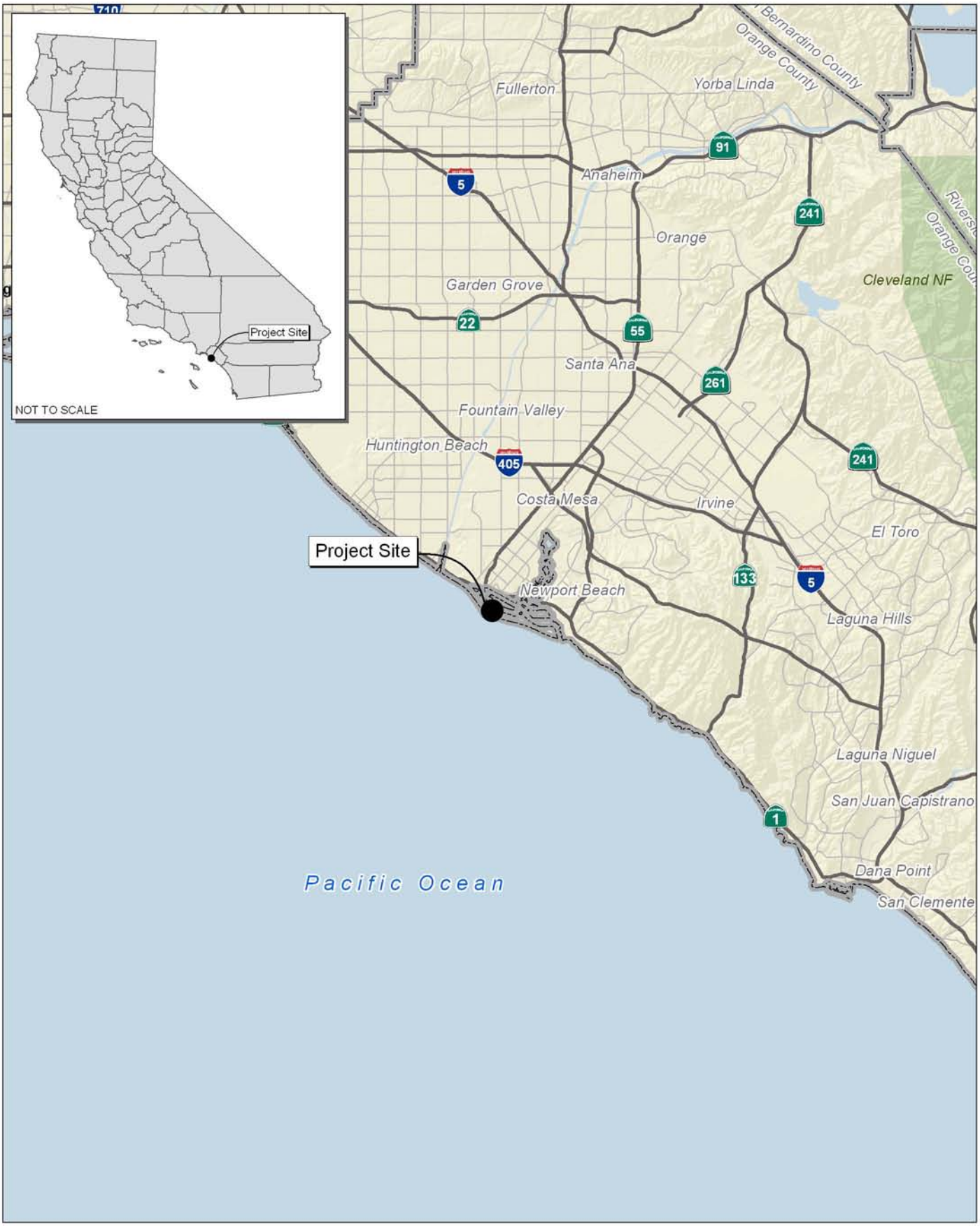
Exhibits



Source: Census 2000 Data, The CaSIL, MBA GIS 2008.

NORTH

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Miles

Michael Brandman Associates

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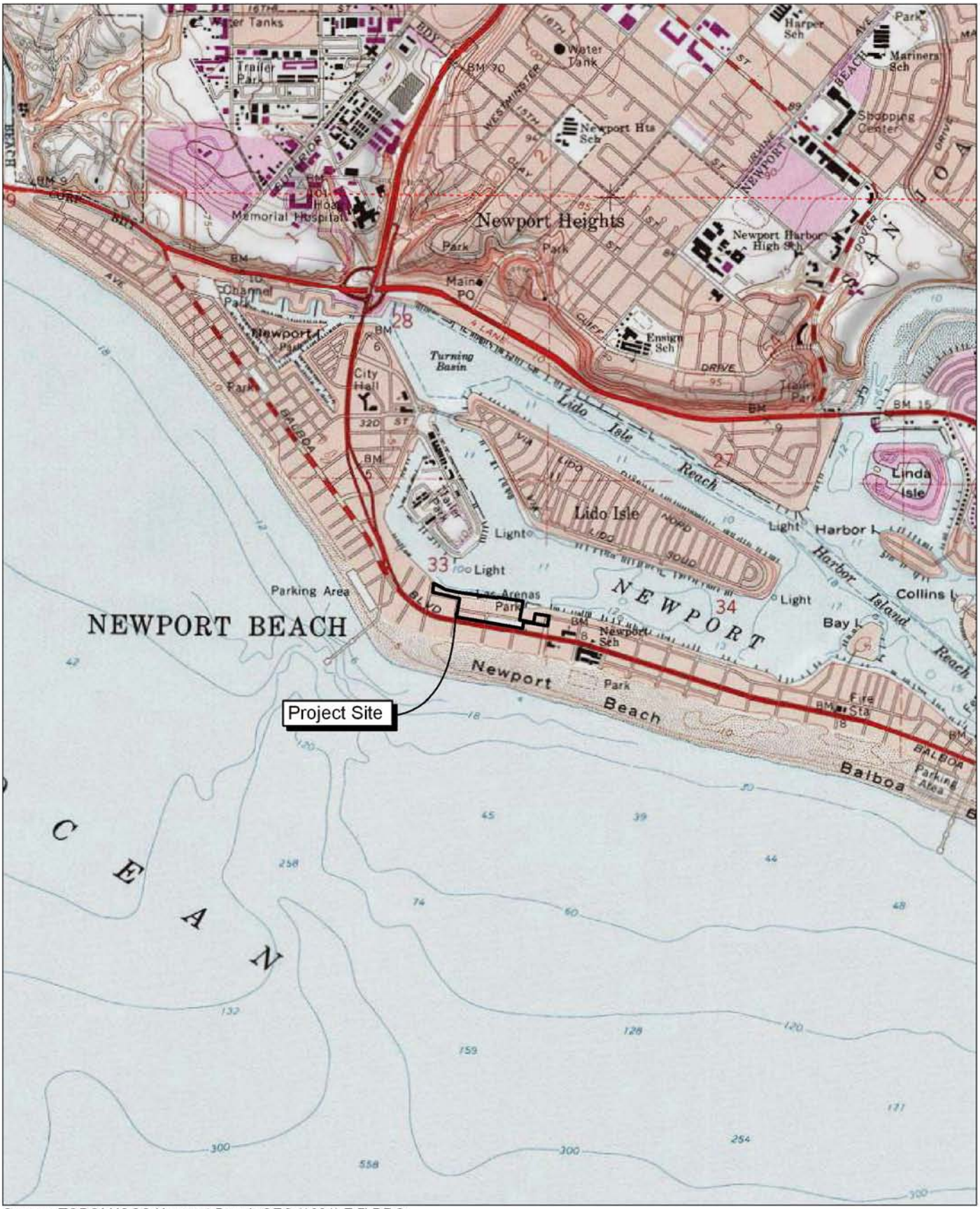
Exhibit 1
Regional Location Map

CITY OF NEWPORT BEACH • MARINA PARK
BIOLOGICAL RESOURCES LETTER REPORT



Source: TOPO! USGS Newport Beach OES (1981) 7.5' DRG.

NORTH

2,000 1,000 0 2,000 Feet

Michael Brandman Associates

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Exhibit 2
Local Vicinity Map
Topographic Base

Source: Google Earth Pro.

NORTH

500 250 0 500
Feet

Michael Brandman Associates

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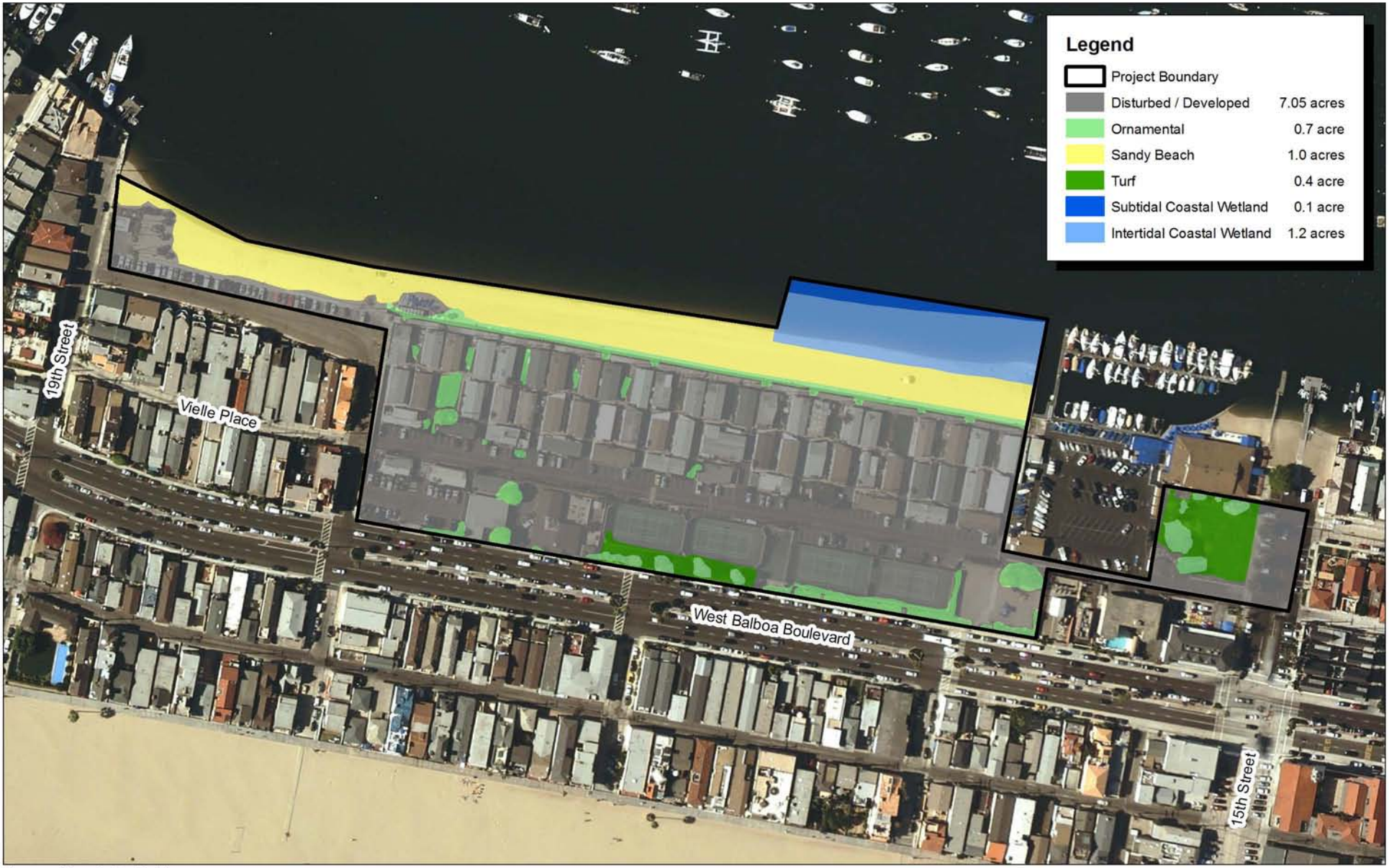
Exhibit 3
Local Vicinity Map
Aerial Base



Source: Google Earth Pro.

NORTH

200 100 0 200 Feet

Michael Brandman Associates

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Exhibit 4
Plant Communities Map

CITY OF NEWPORT BEACH • MARINA PARK
BIOLOGICAL RESOURCES LETTER REPORT

Photograph 1 and 2 (merged): West facing view of representative turf grass and ornamental vegetation in the southeastern corner of the project site.

Source: MBA, 2008.

NORTH

Michael Brandman Associates

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Exhibit 5a
Site Photographs 1 and 2

CITY OF NEWPORT BEACH • MARINA PARK
BIOLOGICAL RESOURCES LETTERS REPORT

Photograph 3: East facing view of ornamental vegetation at the entrance to the Marina Park mobile homes, at the corner of West Balboa Boulevard and 18th Street.

Photograph 4: West facing view of tennis courts and mobile homes with associated parking lot in the eastern half of the site.

Source: Michael Brandman Associates, 2007.

Michael Brandman Associates

Exhibit 5b
Site Photographs 3 and 4

Photograph 5: West facing view of the beach adjacent to mobile homes in the northern portion of the site.

Source: MBA 2008.

NORTH

Michael Brandman Associates

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Exhibit 5c
Site Photograph 5

D.2 - MARINE BIOLOGICAL IMPACT ASSESSMENT

MARINE BIOLOGICAL IMPACT ASSESSMENT
MARINA PARK PROJECT
NEWPORT BEACH, CALIFORNIA

Prepared for:
The City of Newport Beach
Public Works Department
3300 Newport Boulevard, Newport Beach, CA 92663
Contact: Mark Reader, Project Manager
(949) 981-5260

Prepared by:

Coastal Resources Management, Inc.
PMB 327, 3334 E. Coast Highway, Corona del Mar, CA 92625
Contact: Rick Ware, Principal/Senior Marine Biologist
(949) 412-9446

October 15th, 2008
Revised December 18th, 2009

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MARINE BIOLOGICAL RESOURCES ASSESSMENT
MARINA PARK PROJECT
NEWPORT BEACH, CALIFORNIA

1.0 INTRODUCTION

This report presents the results and findings of a marine biological impact assessment for the Marina Park Project Marina. The purposes of this investigation are to identify the existing marine resources in the vicinity of the project site, analyze project impacts on marine resources, and identify mitigation measures to avoid, reduce, or compensate for potential adverse project impacts on marine resources.

The study was conducted to (1) assess the project depths, sediment types, and types of marine life on the bayfloor in the vicinity of the property proposed for the marina and (2) to provide the basis for a marine biological resources impact assessment of the proposed project on intertidal and subtidal marine resources in the project area. Field survey results of surveys conducted by CRM in August and September 2008 are integrated into Section 2, Environmental Setting and presented in full in Appendix 1.

1.1 PROJECT LOCATION AND CURRENT USES

The project site is located on the Balboa Peninsula in southwest Newport Beach (Figure 1, Photograph 1). The project site encompasses approximately 10.45 acres and presently supports the Marina Park mobile home park (3.83 acres), Girl Scout House (0.34 acres), community center (0.50 acres), Las Arenas Park (1.50 acres), the Southern California Edison parcel (0.14 acres), Veteran's Park (0.47 acres), alley, sidewalk, and 19th Street restroom (0.97 acres), beach (2.16 acres), and the portion of the project site within Newport Bay (0.54 acres). The site is bordered on the east by an asphalt parking lot, the American Legion Post 291, residential and commercial uses, and 15th Street, to the south by West Balboa Boulevard and residential uses, and to the west by18th Street, a hotel and residential uses, and 19th Street along the public beach.

The shoreline consists of a wide, City-maintained sand beach between 16th and 18th Streets. A cement groin separates the sand beach from the American Legion Marina on the east. Residential docks border the west end of the public beach at 19th Street.

The shoreline and waters at the project site are located southeast of the Rhine Channel section of Lower Newport Bay (Newport Harbor) and south of Lido Isle. Several shipyards are active in the Rhine Channel, and private and commercial vessels are kept in boat slips that line the Rhine Channel, Lido Peninsula, and Balboa Peninsula perimeter. Private vessels are moored throughout the waters in the general vicinity of the project area. The waters along the shoreline between 15th and 18th Street are currently used for public recreation, including swimming, kayaking, sailing, and power boating.

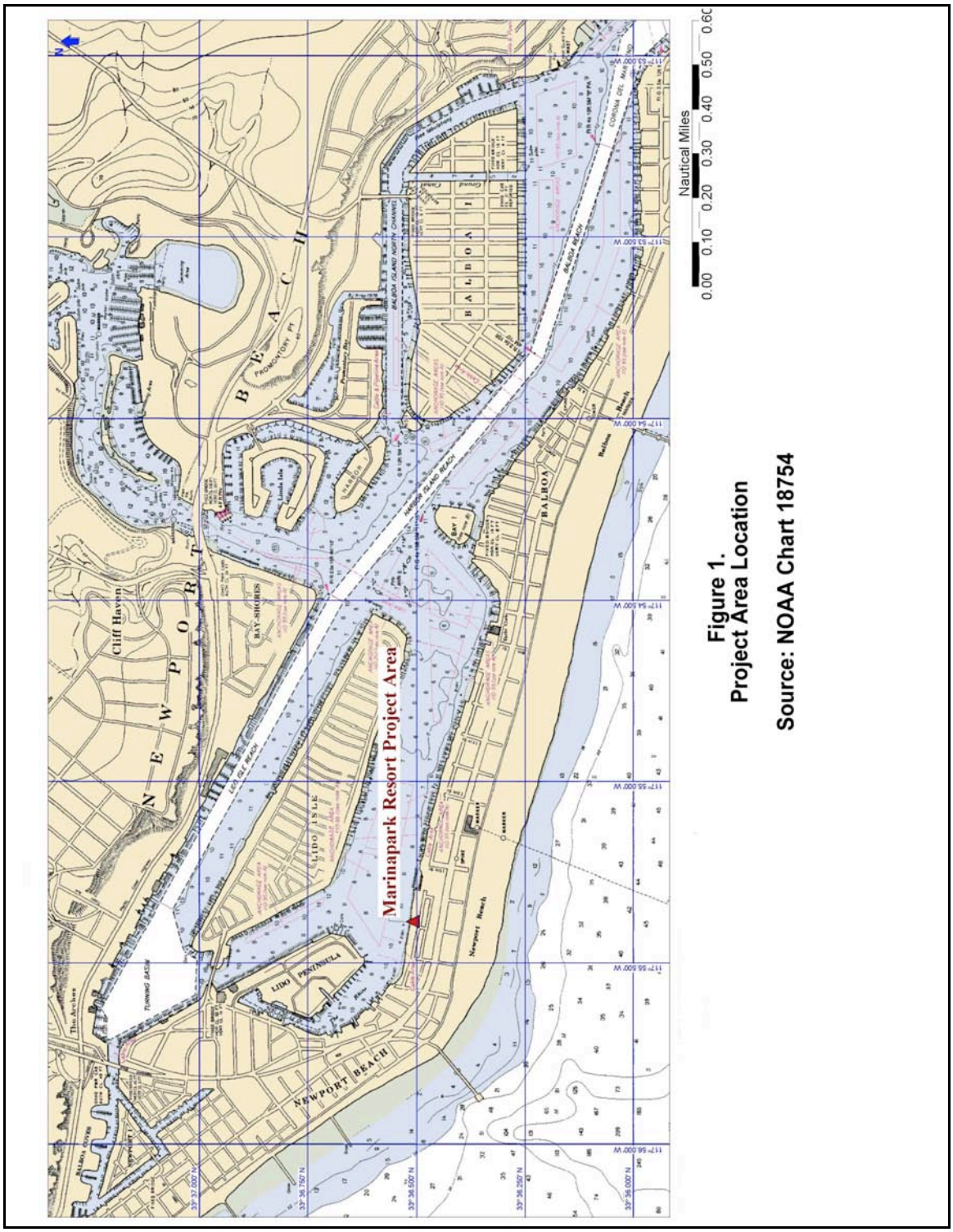

Figure 1.
Project Area Location

Source: NOAA Chart 18754

Photograph 1. Location of Project Site and other areas of West Newport Bay

1.2 PROPOSED PROJECT AND PROPOSED USES (Source; MBA)

The public park will provide for passive and active areas. The passive area will include an open lawn area and a water feature. The active areas will include a children's play area and a half-court basketball court. The public short-term visiting vessel marina is proposed to accommodate visiting vessels for up to 30 days. Utility hook-ups are proposed to be available for the marina. Bathrooms and laundry areas are proposed adjacent to the marina. The Balboa Sailing Center will include rooms for educational classes as well as community events. A restaurant will be located on top of the Balboa/Sailing center and will include areas for marina rentals as well as room for sailing classes. There are two tennis courts proposed on the eastern portion of the site adjacent to 15th Street. In addition, an existing bathroom on the public beach adjacent to 19th Street is proposed to be renovated or reconstructed but the size of the bathroom facility would remain the same. Primary access to the project will be via West Balboa Boulevard at 17th Street and secondary access will be via a controlled exit/entrance off of 15th Street. Public access to the beach will be provided by walkways within the proposed park as well as an access provided along the western side of the proposed marina. Furthermore, 18th and 19th Streets will still provide access to the public beach.

Figure 2a. Marina Park Layout
Source: Michael Brandman Associates

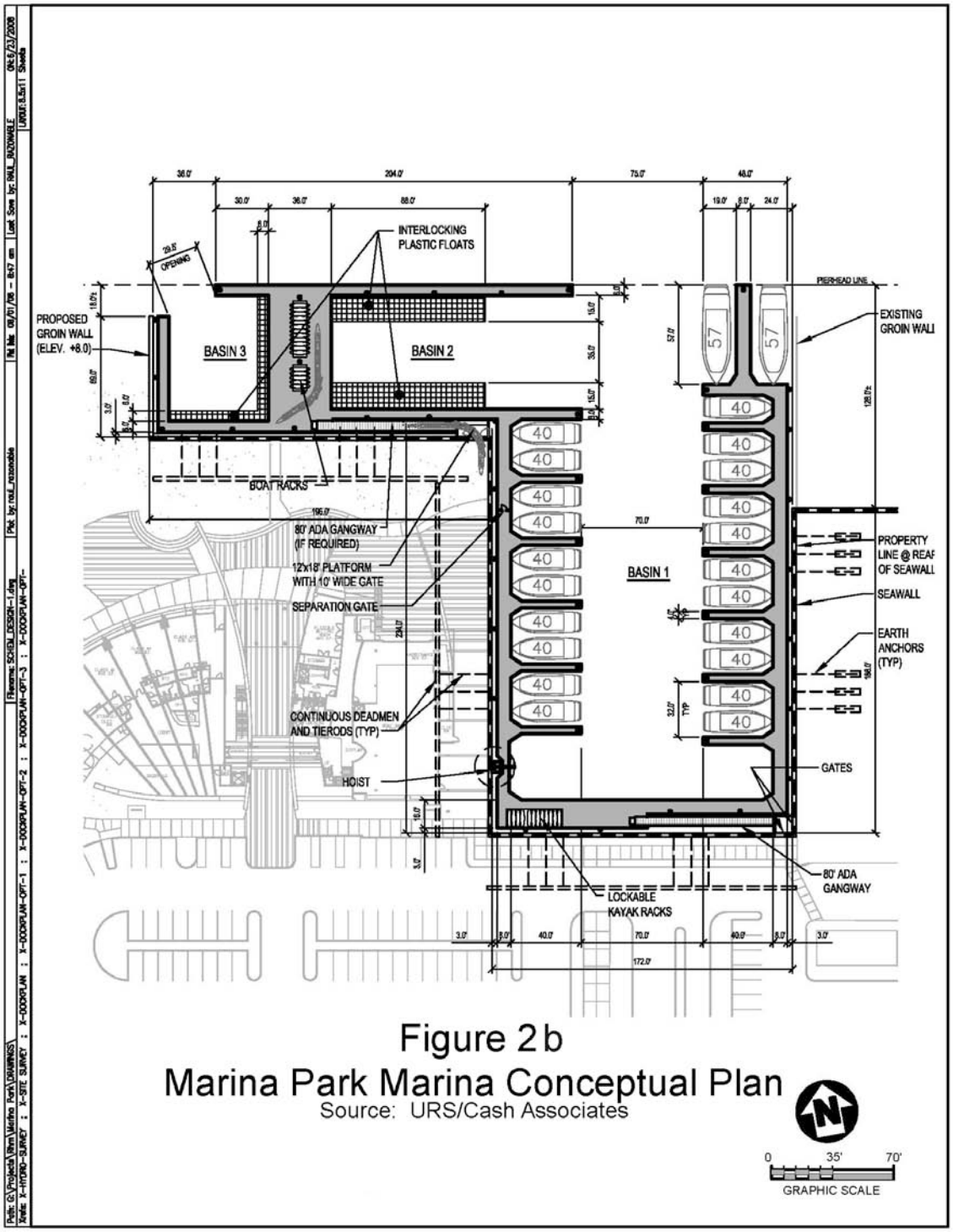

Figure 2b
Marina Park Marina Conceptual Plan
Source: URS/Cash Associates

2.0 MARINE RESOURCES ENVIRONMENTAL SETTING

The marine environment area investigated for this project extends between 15th Street and 19th Street, between the shoreline and a depth of -12 feet Mean Lower Low Water (MLLW). In addition, sediment, chemical, and biological information collected between 1952 and 2003 from 10th Street to and including the Rhine Channel was included where it pertained to potential project impacts. The local project area is shown in Photographs 2 through 5. Channel depths vary between 0 to approximately 12 feet (Mean Lower Low Water). At the site of the proposed docks at the east end of the swimming beach, the elevations extend from supra-tidal (+8 ft) MLLW to water depths of approximately 10 ft MLLW.

The project site includes 0.76 acre of Newport Bay, which are navigable waters of the U.S. and subject to federal jurisdiction under Section 10 of the Rivers and Harbors Act of 1899. The on-site portions of the Bay are also subject to RWQCB jurisdiction under Section 401 of the CWA. As defined using USACE criteria, no adjacent wetlands are found on the project site. (Michael Brandman Associates, 2009).

The marine environment in this section of Newport Harbor is subject to reductions in sediment and water quality as a result of restricted tidal circulation, industrial activities, dry weather runoff, and storm water runoff to the bay (California Department of Fish and Game 1952; County of Orange 1978; California Water Resources Control Board 1998; Southern California Coastal Water Research Project 2003). Newport Bay is currently included on the U.S. EPA 303(d) Listed Water Bodies and Associated Pollutants of Concern (EPA 2002). Newport Harbor (Lower Newport Bay) is specifically listed as impaired as a result of significant concentrations of metals and pesticides in the sediments.

Water-related industries and uses at various times in the past have included private and military vessel construction and boat repair facilities, cannery processing facilities for the Newport Bay fishing fleet, boat marinas and commercial businesses (i.e., restaurants).

2.1 WATER QUALITY

2.1.1 Flushing Rates. Tidal flushing rates differ throughout the Harbor (Everest International Consultants, Inc. 2007; Figures 3). The tidal flushing rate varies from one day at the harbor entrance to up to 30 days in the vicinity of Marina Park and the Rhine Channel. Longer periods between complete tidal flushing cycles reduces water quality

by increasing water temperatures, lowering dissolved oxygen, and increasing the length of time that suspended sediments prevent light from illuminating the seafloor. The long residence time required to flush the bay through tidal action appears to be an important factor that affects both water and sediment quality.

2.1.2 July-August 2008 Oceanographic Data Water column sampling was conducted in the vicinity of Marina Park 10 times between 25 July and 22 August 2008 (Coastal Resources Management, Inc. unpublished data). Data were collected at surface, mid, and bottom depths. A summary of the data, by sampling level is presented in Table 1.

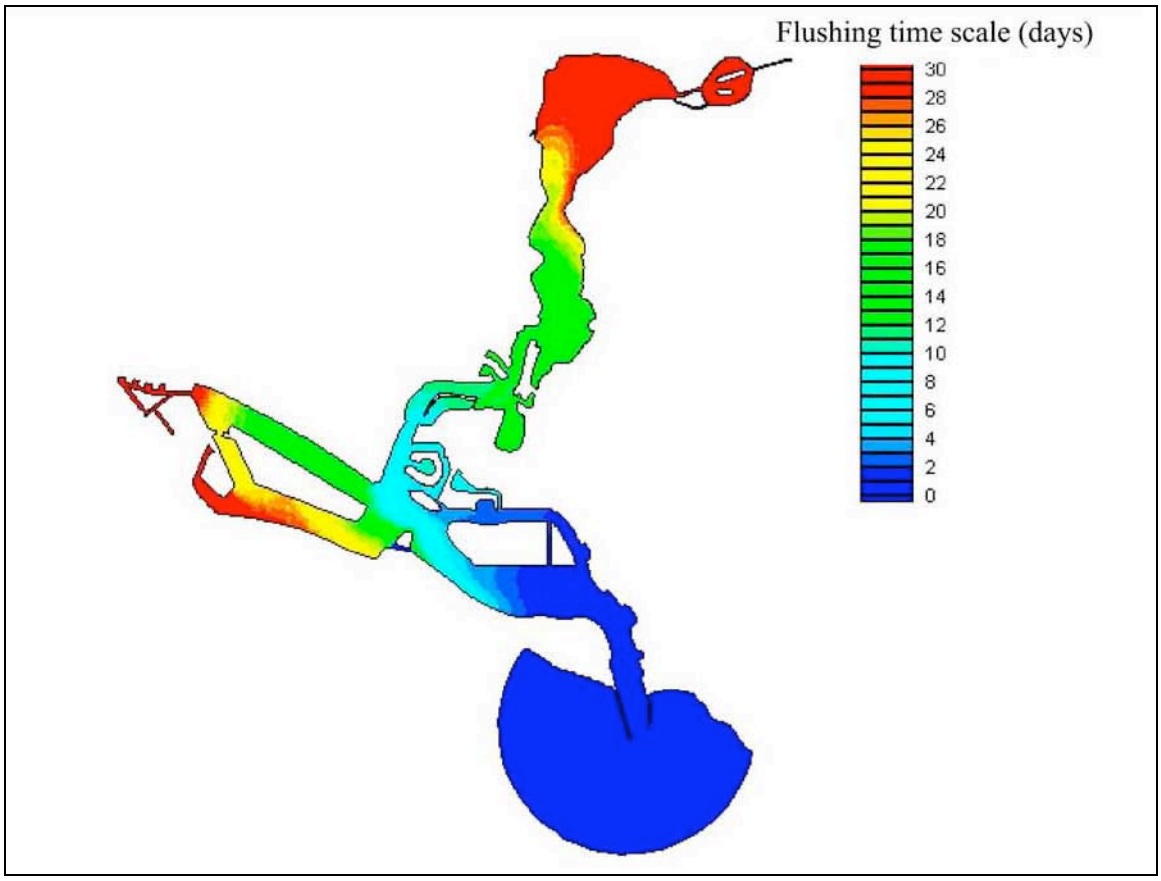

Figure 3 Tidal Flushing Rates for Newport Bay.
Source: Everest International Consultants, Inc.

The data illustrate summer maxima in water temperatures, with conversely, low dissolved oxygen concentrations and low pH. Low dissolved oxygen levels are an indication of degraded water quality, particularly if it is a persistent condition. It commonly occurs in areas of poor circulation and high organics. In general, a concentration of 5 mg/l (ppm) of dissolved oxygen is required to sustain marine life.

All parameters exhibited a decline in values with an increase in depth. Mean water temperatures varied from 74.28 F at the surface, to 72.69 at the bottom. Dissolved oxygen concentrations varied from 6.71 mg/l at the surface to 5.15 mg/l at the bottom; pH decreased from 7.95 at surface and mid depths, to 7.87 at the bottom; salinity ranged

from 32.46 parts per thousand (ppt) at the surface to 32.42 ppt at the bottom. The range in Total Dissolved Solids varied from 32.23 g/l to 32.18 g/l at the bottom.

Maximum and minimum survey values for each parameter were 71.17 F (bottom) and 76.73 F (surface) for water temperature; 4.10 mg/l (bottom) to 7.76 mg/l for dissolved oxygen; 7.76 (bottom) to 8.05 (bottom) for pH; 32.26 ppt (surface and bottom) to 32.95 ppt (surface) for salinity; and 32.03 g/l (bottom) to 32.65 g/l (surface) for total dissolved solids.

Table 1.
Rhine Channel Buoy (Mid channel between Balboa Peninsula and Lido Peninsula)
Oceanographic Data, July 25th to August 22nd , 2008
Source: Coastal Resources Management, Inc.
n=9 surveys

Surface Values (1 ft below surface)

	Temp (F)	Temp (C)	Dissolved Oxygen mg/L	pH	Salinity ppt	Total Dissolved Solids g/L
Mean	74.28	23.49	6.71	7.95	32.46	32.23
Std Dev	1.1	0.6	0.5	0.1	0.2	0.1
N of reps	21	21	19	21	21	21
Min	72.68	22.60	5.89	7.85	32.26	32.04
Max	76.73	24.85	7.65	8.04	32.95	32.65

Mid Depth (-6 ft MLW)

	Temp (F)	Temp C	Dissolved Oxygen mg/L	pH	Salinity ppt	Total Dissolved Solids g/L
Mean	73.47	23.04	6.51	7.95	32.44	32.20
Std Dev	1.1	0.6	0.9	0.1	0.1	0.1
N of reps	19	19	17	19	19	19
Min	71.78	22.10	4.46	7.85	32.28	32.06
Max	76.14	24.52	7.76	8.04	32.59	32.34

Bottom Water (-12 ft MLLW)

	Temp (F)	Temp C	Dissolved Oxygen mg/L	pH	Salinity ppt	Total Dissolved Solids g/L
Mean	72.69	22.61	5.15	7.87	32.42	32.18
Std Dev	1.2	0.7	1.1	0.1	0.1	0.1
N of reps	16	16	14	16	16	19
Min	71.17	21.76	4.10	7.76	32.26	32.03
Max	75.13	23.96	7.27	8.05	32.64	32.38

2.2 SEDIMENTS

Identifying sediment types and concentration of chemicals in Newport bay sediments is important for several reasons: (1) chemical contaminants are primarily bound to finer grain sizes (2) contaminants in the sediments can be assimilated into the food chain (3) alterations to the seafloor through dredging or other activities that disrupt the seafloor may result in the release of contaminants to the water column and (4) sediment characteristics and sediment contamination will affect the distribution and abundances of marine organisms.

2.1.1 Intertidal Sand Beach Sediments and Levels of Contaminants

Petra (2004a) conducted sediment grain size and sediment chemistry testing from beach sediments in the area proposed as a 12-slip marina for a Limited Phase II Soils Assessment. These sediments were collected at the low tide line. Photograph 2 shows the general area where the samples were collected from. No tidal level data relative to Mean Lower Low Water information was provided. The upper three feet of sediment cores taken at the swimming beach sediments consisted of fine to medium sands; at a depth of four feet, the sediments included finer silts. No detectable concentrations of semi-volatile organic compounds (SVOCs), organo-chloride pesticides (OCPs), or polychlorinated biphenyl's (PCBs) were detected. Metals were not detected at elevated ranges. Total Petroleum Hydrocarbons (TPH*)* were detected at 10 milligrams per kilogram (mg/kg) in soil from Boring 2. TPH concentration of 10 mg/kg is insignificant and does not represent an environmental condition at these boring locations (Petra 2004a).

2.1.2 Subtidal Bayfloor Sediments and Levels of Contaminants

Beyond the tide line, Newport Harbor sediments consist of sand, mud, or combinations of sand/shell hash sediments depending on tidal exchange rates, current velocities, channel depths, the configuration of the bay, and proximity to sources of sediment inputs.

Observations made during a site reconnaissance survey at the proposed marina project site (CRM 2004, 2008) indicated that sediments at depths shallower than -2 ft MLLW were predominantly sands, a combination of sands and silts at depths up to -6 ft MLLW, and primarily silts at depths up to 11 ft MLLW. Sediment samples taken at a depth of -3 ft MLLW in front of the proposed marina in at 15th Street in front of the existing trailer park in September 2008 indicated the sediments consisted of 0.43% gravel, 3.12% coarse sand, 48.93% medium sand, 44.89% fine sand, 0.58% silts, and 2.05% clay (Coastal Resources Management, Inc. unpublished data). Comparatively, the bayfloor in the vicinity of 18th Street at the entrance to the Rhine Channel consists of between 90 % and 95% fine-grained sediments at depths of -5 to -10 ft MLLW (Harbor Resources Department unpublished data).

Petra (2004b) conducted environmental site assessment work at the proposed Regent Marina site, Newport Beach, California on March 17th, 2004. The work consisted of drilling and sampling three borings at a depth of 0.5, 2.5 foot and 5 feet below the mud line in the Rhine Channel to assess the environmental condition of submarine sediments on site. The five foot samples were archived. The soil samples were analyzed by dry

weight in a State approved laboratory. In addition, representative samples of the subsurface sediments were collected for grain size analysis.

The geologic and chemical information obtained indicates the following:

- The Rhine Channel in the vicinity of the site is underlain by one to three feet of bay mud consisting of organic silty and clayey sand. Beneath the bay mud is medium and coarse sand with shell fragments.

- Trace amounts of Total Petroleum Hydrocarbons (TPH) were detected in the one-half foot samples in all three borings and in the two and one half foot sample in Boring BP-2. The detected concentrations were less than 40 milligrams per kilogram (mg/kg). The likely source of this contamination is storm water runoff.

- Semi-volatile organic compounds (SVOCS) were not detected in any of the collected samples.

- The organo-chlorine pesticide 4,4'-DDE was detected at a concentration of 13 micrograms per kilogram (ug/kg) in the one half foot sample in boring BP-3. The source of this material is likely .

- Polychlorinated biphenyls (PCBs) were not detected in any of the collected samples.

- Metals concentrations were within the anticipated background range for soils in Southern California.

Based on these findings, the Limited Phase Two Sampling Program of submarine sediments at the proposed Marina Park marina site indicates that sediments are >80% sand material, and classified as medium to coarse sands. These materials are suitable for beach disposal. Slight chemical degradation of the sediments has occurred (Petra 2004b). Very low concentrations of petroleum hydrocarbons are present in the upper one-half foot of the bay mud. The hydrocarbons are not present at levels which require regulatory involvement or remediation. A single sample contained a very low concentration of a organo-chlorine pesticide (13 ug/kg 4,4-DDE). This concentration is well below action levels for soils on land.

Between 1992 and 1997, the State Water Resources Control Board (SWRCB and other State and Federal agencies conducted investigations of sediment chemistry, toxicity, and benthic community conditions in Newport Bay and other selected water bodies in the Santa Ana Region (SWRCB et al. 1998). Lower and Upper Newport Bay sediments were surveyed in 1994 at 23 locations (Figure 2). Three stations were located in west Newport Bay region, in the region surrounding the proposed marina site

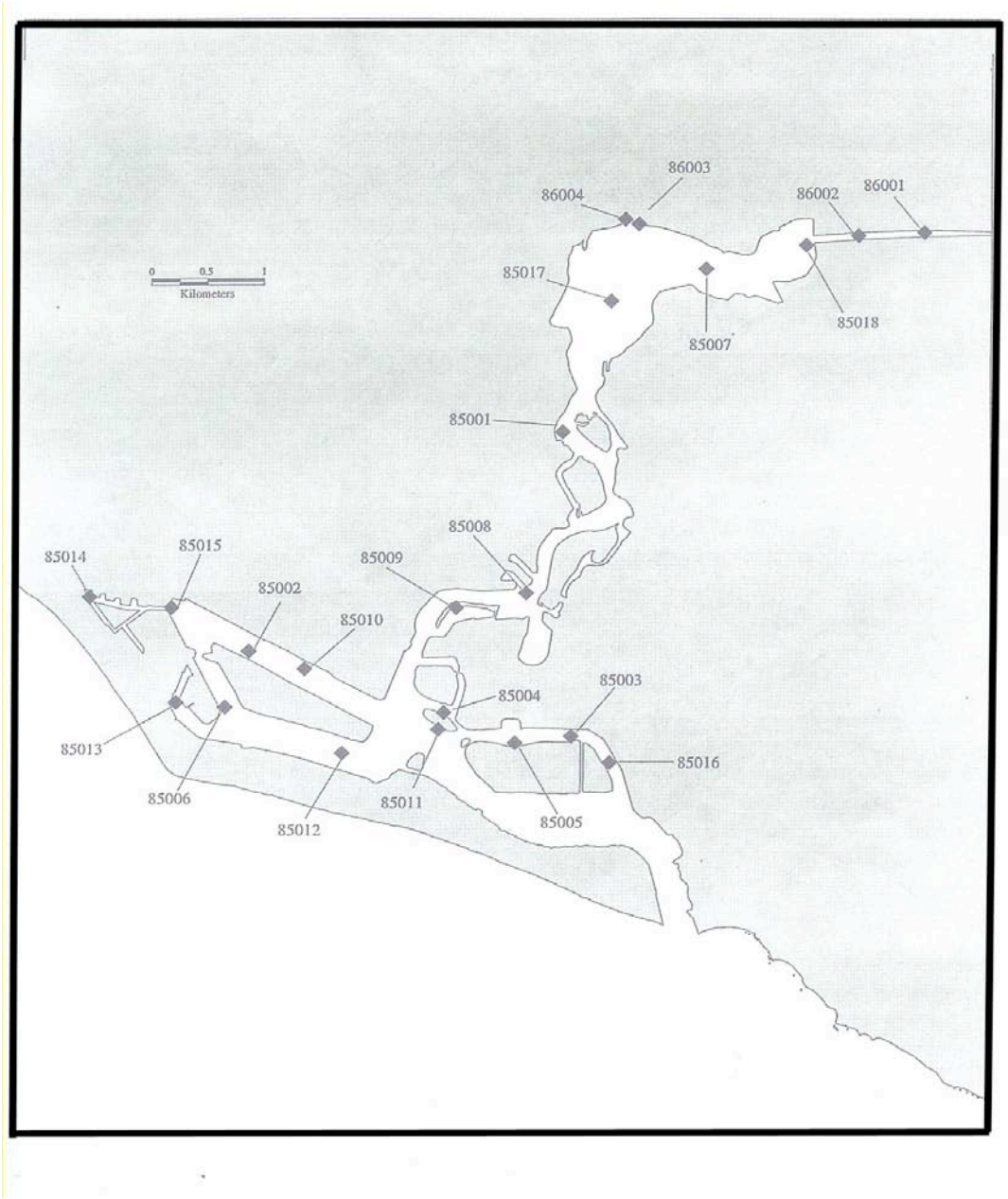

Figure 4. 1994 SWRCB Sampling Stations in Newport Bay

for sediment contaminants and sediment biology. These stations included 85006, off the east tip of Lido Peninsula; 85012, mid-channel between the Balboa Peninsula and Lido Isle near the 10th Street Beach, and 85013, in the Rhine Channel.

Based on the results of the sampling, Newport Bay sediments contained elevated concentrations of several contaminants at levels known to be toxic to marine organisms. Rhine Channel sediments (85013) contained elevated concentrations of mercury, copper, p,p; DDD, Total PCBs, and tri-butyl tin (TBT). Sediments around Lido Peninsula and Lido Isle (including 85006 and 85012), Harbor Island, Dover Shores, and De Anza (Bayside) Peninsula were elevated for either lead, p'p, DDE, or Total Chlordane, or a

combination of these compounds. Potential biotoxicity on marine organisms was also addressed. These results are summarized in Section 2.2.

The Southern California Coastal Water Research Project (SCCWRP) investigated site-specific sediment contamination in the Rhine Channel and the effects of contaminants on marine organisms at 16 stations in 2002 (SCCWRP 2003). Their study results also found contamination in the sediments. Concentrations of copper, mercury, lead, zinc, and total PCBs exceeded the sediment TMDL (Total Maximum Daily Load) targets at all 15 sediment stations in the Rhine Channel. The exceedances varied between 4.3 times the TMDL sediment target for zinc, to 110 times the TMDL sediment target for mercury. Total PCBs exceeded the TMDL sediment target by 13 times. Several other constituents were also elevated. Elevated concentrations of dissolved trace meters (copper, nickel, mercury, selenium, and zinc) indicated that some sediments were being released to the water column. The results of toxicity experiments conducted with these contaminated sediments are discussed in Section 2.2.

Petra (2003c) conducted sediment contaminant sampling in the Rhine Channel for a proposed shipyard redevelopment project at the South Coast Shipyards. Copper, lead, and mercury exceeded the Title 22 of the California Code of regulations Soluble Threshold Limit Concentration (STLC) by 10 times in several samples. Elevated concentrations of PCBs were also found in the sediments.

TABLE 2
Total Maximum Daily Load (TMDL) Target Values for Newport Bay
Source: SCCWRP 2003

Contaminant	TMDL Target Value (mg/kg)	Contaminant	TMDL Target Value (ng/g)
Copper	18.7	**chlordane**	2.26
Chromium	52	**dieldrin**	0.72
Lead	30.4	**Total DDTs**	3.89
Zinc	124	**Total PCBs**	21.5
Mercury	0.13		

2.3 MARINE BIOLOGICAL RESOURCES

Marine habitat types in the Marina Park project area include a city-maintained sandy beach, intertidal sand/mudflats, subtidal bay bottom (benthos), a cement groin that separates the sand beach from the American Legion marina, and open water bay habitat (Photographs 2 to 5).

The project area intertidal zone extends from Extreme Low Water (-2.0 ft. MLLW) to Extreme High Water (+7 ft. MLLW). Subtidally, water depths in the project area range from -2.0 ft to approximately -12 ft MLLW. Depths at the offshore edges of the boat docks located to the east of the project area are approximately -8 ft to -10 ft MLLW (Coastal Resources Management, 2004).

Photograph 2. Marine habitat fronting the proposed Marina Park Project. View facing east, towards location of proposed marina

Photograph 3. View looking west toward 18th Street

Photograph 4. South-facing view of sand beach in the vicinity of the proposed marina

Photograph 5. North-facing view of shoreline and waters in the vicinity of the proposed marina

2.3.1 Sand Beach

While most of the shoreline of Newport Harbor is dredged for boat slips and lined with bulkheads, open sand beaches are scattered throughout the harbor. Most of Newport Harbor's sandy beaches are located around Balboa Island, although some sand beach habitat is found on Bay Isle, Lido Isle and Balboa Peninsula.

On the Balboa Peninsula, public swimming beaches are located between 9th Street and 10th Street, and between 15th Street to 19th Street. These beaches provide the public with recreational opportunities, but they are also habitat for marine-associated wildlife.

The high intertidal portion of the city-maintained public beach support few if any marine organisms in the sediments because of the infrequent tidal exposure and periodic cleaning and grooming. This higher elevation however, is resting habitat for seabirds (gulls and pelicans). The middle and low intertidal zones provide more consistent tidal inundation and supports burrowing species of invertebrates (primarily clams, crustaceans, and polychaete worms). These organisms attract shorebirds to the mid and low intertidal elevations of the beach that utilize these invertebrates as their food source (Quammen 1980).

2.3.2 Subtidal Soft Bottom Benthos

Beyond the shoreline, the sediments support algae and bottom-dwelling organisms (benthic invertebrates), some of which crawl over the surface of Newport Bay sediments, while others lead a sessile existence and protrude above the sediments from within a tube. While the majority of benthic invertebrates of bays and estuaries obtain their nutrition by consuming organic detritus, some graze on diatoms and algae or actively prey on other invertebrates. In turn, bottom feeding fishes and resident soft bottom-dwelling fishes (gobies, juvenile flatfish, and sand bass) rely upon these benthic organisms as food sources (ACOE 2000, MBC and SCCWRP 1980).

Algae and Eelgrass. The shallow subtidal zone fronting the sand beach shoreline in the project area is occasionally vegetated green algae (*Enteromorpha* sp). At deeper depths, red algae is more common. During marine biological surveys conducted along the shoreline of the project area in October 2003, March 2004, October 2007, and August 2008, no eelgrass *(Zostera marina*) was at depths between 0.0 and -12 ft MLLW along the 15th to 19th Street shoreline. Eelgrass is a sensitive marine resource because of its value as a nursery habitat and protective cover that it provides for invertebrates and fish. While it is prolific throughout may parts other Newport Harbor from Bay Isle east to the Harbor Entrance Channel (CRM 2004, CRM 2008, in preparation) its western-most occurrence along the Balboa Peninsula is near the Newport Harbor Yacht Club (CRM, 2004; CRM 2008 in preparation).

Benthic Invertebrates. Over 300 species of benthic invertebrates that live in the sediments (benthic infauna) have been identified from Newport Bay mudflats and subtidal channel sediments (Barnard and Reish 1959, Dawson 1963, Daugherty 1978, MBC and SCCWRP 1980, Seapy 1981, Ware 1985, SWRCB et al., 1998). The dominant types are annelid worms (polychaetes and oligochaetes), arthropods (gammarid and caprellid amphipods, isopods, ostracods, and cumaceans), and mollusks (gastropods and

pelecypods). Most are not endemic to Newport Bay or necessarily reflect polluted bottom conditions. Rather, they are widely distributed and highly adaptable (they survive well under stress conditions which occur naturally in many California coastal bays and estuaries).

The numbers of benthic infaunal species decrease between the harbor entrance and the regions where water circulation is restricted in Newport Harbor and Upper Newport Bay (MBC and SCCWRP 1980, Daugherty 1978). These community changes occur because of increasing environmental stresses due to extremes in salinity, temperature, and dissolved oxygen, as well as decreasing grain sizes within the sediments they inhabit. Other influences, related to the concentrations of contaminants in the sediments will also affect the types and abundances of organisms inhabiting Newport Bay sediments (SWRCB et al. 1998).

Common benthic invertebrates identified in the fore-mentioned studies include polychaete worms (*Capitella capitata*, *Pseudopolydora paucibranchiata*, *Streblospio benedicti*, *Haploscoloplos elongatus*, *Tharyx* sp. *Neanthes arenaceodentata*, *Polydora socialis*, *P. ligni*, *P. nuchalis*, *Prionospio heterobranchia newportensis*), oligochaete worms, amphipods (*Grandidierella japonica*, *Corophium acherusicum*, C. *insidiosum*, *Ampithoe* spp.), caprellid amphipods (*Mayerella banksia*), snails (*Tryonia imitator* and *Assiminea californica*), and clams (*Theora lubrica*, *Chione fructiflaga*, *Macoma* spp., *Tagelus subteres* and *T. californianus*)

Many larger types of benthic invertebrates live on the sediment surface (epifauna). Several species of epifauna were observed at the site of the proposed Marina Park marina in October 2003 (CRM, 2003). These included the hydroid *Corymorpha palma*, tube anemone *Pachycerianthus fimbriatus*, tube-dwelling polychaete annelid worms, tube-dwelling amphipods (*Grandidierella japonica*), and the predatory sea slug (*Chelidonera [Navanax] inermis.*

A comparison of benthic species richness, abundance, and density per square meter is provided in Table 3. Historically, the benthic infaunal community in the general vicinity of the proposed Marina Park marina is characterized by low numbers of species and high abundances of a few species of invertebrates that reproduce well and out compete other species under stressed environmental conditions (California Department of Fish and Game 1953, County of Orange 1978, SWRCB et al. 1998). The number of benthic species identified at stations between 10th Street and the Rhine Channel during the SWRCB et al. 1994 survey varied between 14 (10th Street) to 32 (Lido Peninsula). Comparatively, cleaner sediments near the Newport Harbor Entrance Channel support as many as 207 species (MBC and SCCWRP 1980).

The Rhine Channel and Lido Peninsula sites were classified as a "Transitional" by the SWRCB which indicates that the sediments have elevated chemical contamination and some toxicity to marine organisms is present. However, the benthic community is not

Table 3.

Comparison of Benthic Species Richness, Abundance and Density Per Square Meter. Rhine Channel, Newport Bay. 1952-1994

SURVEY AND YEAR OF STUDY	SAMPLING METHOD AND SAMPING AREA	TOTAL RICHNESS AND ABUNDANCE	RICHNESS PER SAMPLE	MEAN DENSITY PER SAMPLE (SQ M)
Cal Fish & Game 1951-1952		16 individuals 1 species		
County of Orange September 1975	Three, 0.05 sq. m Ponar Grab samples	184 individuals 18 taxa	8.6 n=3	1,226 n=3
County of Orange March/April 1976	Three, 0.05 sq. m Ponar Grab samples	483 individuals 23 taxa	14.3 n=3	3,220 n=3
Combined Survey County of Orange 1975-1976	Six, 0.05 sq. m Ponar Grab samples	667 individuals 30 taxa	11.5 n=6	2,223 n=6
Regional Board September 1994	Three, 0.1 sq. m Modified Van Veen Samples	1,567 individuals 30 taxa	20.3* n=3	4,816* n=3

* Excludes nematode worms; nematodes were not counted during the County of Orange Survey

"degraded" compared to other areas of Newport Bay and other water bodies within the region. In Newport Harbor, “Degraded” benthic conditions were noted in the channel near 10th Street beach, on the north side of Lido Island, the south side of Harbor Island, and the north side of Balboa Island.

Based on the results of the 1998 SWRCB et al. benthic studies in Newport Harbor, the benthic community in the Rhine Channel has exhibited some signs of recovery compared to earlier studies in Newport Harbor in 1951-1952 (California Department of Fish and Game 1953) and 1975-1976 (County of Orange 1978). However, species richness is considerably lower in the sediments between Lido Isle and the Rhine Channel than in sediments nearer the harbor entrance channel. However, these sediments still have significant chemical contamination that may be toxic to benthic invertebrates and fishes. In addition, sediments released into the water column have a potential to release contaminants into the water column (SWRCB 1998 et al., SCCWRP 2003).

During the 1951-1952 Fish and Game study, 16 individuals of *C. capitata* were found in the Rhine Channel. In September 1975, 18 taxa and 184 individuals were collected in three, 0.05 sq. m. Ponar Grab samples. Mean density was 1,226 individuals/sq. m, and the mean number of species was 8.6. During March/April 1976, 23 taxa and 483 individuals were collected at the same site. Mean density was 3,220 individuals/sq. m, and the mean number of taxa increased to 14.3 per sample. The dominant species encountered in the Rhine Channel during the County study were the polychaetes *Capitella capitata, Schistomeringos rudolphi, Polydora ligni*, the crustaceans *Leptochelia* sp., *Ampithoe pollex, Corophium acherusicum, and C. insidiosum.* During both surveys, 30 species were collected.

During September 1994, three, 0.1 sq. m Young-modified Van Veen Grab samples were collected at Station 85013 in the Rhine Channel. Cumulatively, 30 taxa and 1,567 individuals were collected. With nematodes excluded (they were not counted during the County survey but described as "uncommon" in the Rhine Channel) the mean density per sample was 4,816 individuals/sq. m, and the mean number of species was 20.2 per sample. The dominant species included a complex of oligochaete worms, nematode worms, the polychaete worm *Streblospio benedict*, and the amphipod crustaceans *Grandidierella japonica* and *Ampithoe valida*.

Based upon this analysis, the health of the benthic community in the Rhine Channel slowly improved between 1952 and 1994, a span of 42 years. And, since 1975, the number of species in the Channel increased by a factor of 1.8 and infaunal density increased by a factor of 2.2. The stability of the community structure and the types of organisms present however, are likely still affected by levels of sediment contaminants that are known to produce toxicity at levels measured in the Rhine Channel sediments (SWRCB et al. 1998).

Benthic Contaminants and Toxicity to Marine Organisms in Newport Harbor. The State study (SWQCB et al. 1998) employed the Long and Morgan's Effects Range Low (ER-L) and Effects Range-Medium (ER-M) analysis (Long and Morgan 1990) to rate the potential for biological effects based upon the concentrations of contaminants found in the sediments that are associated with toxic responses on marine organisms. Biological effects are most probable at or above the ER-M (Long and Morgan 1990). Some Newport Bay sediments, including the Rhine Channel had the highest ERM Quotient of any regional water body. The Rhine Channel had the highest number of ERM exceedances; these were for copper, mercury, zinc, and total PCBs. The highest overall exceedances in Newport Bay were for mercury in the Rhine Channel (12.3x the ERM).

Toxicity studies were conducted using Rhine Channel Sediments during the SCCWRP 2002 investigation (SCCWRP 2003). Sediments were toxic to amphipod crustaceans and sea urchin larvae at a majority of the 15 stations sampled. However, the cause of the sediment or seawater-interface toxicity (SWI) reported in this study could not be determined with the available data. There were no statistically significant negative correlations among metals or organic contaminants and toxicity. It is possible that unmeasured contaminants or differences in contaminant bioavailability among stations may be responsible for the observed toxicity (SCCWRP 2003).

2.3.3 Bulkhead and Seawall Associated Plants and Animals.

Man-made substrates (bulkheads, seawalls, docks, pilings, jetties) in Newport Harbor are not biologically sensitive. However, hardscape provides surface area for sessile marine animals and plants that would not be present in the Harbor in the absence of development. Common types of organisms found on bulkheads and docks in Newport Bay are listed in Table 4. The hardscape of these structures support mussels, barnacles, and sponges, and other types of invertebrates, and plants that constitute the “biofouling

Table 4.
Common Invertebrates Observed on the Bulkheads and Docks in Newport Bay

Source: Coastal Resources Management (1998; unpublished observations)

Scientific Name	Common Name	Intertidal Zone to shallow subtidal zone	Relative Abundance
Chlorophyta	green algae		
Ulva spp.		mid to subtidal	common to abundant
Phaeophyta	brown algae	low to subtidal	
Cystoseira osmundacea		low to subtidal	present
Sargassum muticum		low to subtidal	present
Rhodophyta	red algae	low to subtidal	common
Haliclona sp.	sponge	low to subtidal	present
Cnidaria	hydroids & anemones		
Aglaophenia dispar	hydroid	low to subtidal	present
A. elegantissima	anemone-solitary form	mid to subtidal	uncommon
Polychaeta	segmented worms	mid to subtidal	common to abundant
Arthropoda	crustaceans		
Balanus glandula	barnacle	mid to high intertidal	common
Chthamalus fissus/dalli	barnacle	high to splash intertidal	common
Pachygrapsus crassipes	lined shore crab	high to low intertidal	uncommon
Mollusca-Gastropoda	snails		
Lottia limatula	finger limpet	middle to low intertidal	common
Mopalia mucosa	chiton	middle to low intertidal	present
Mollusca-Pelecypoda	bivalves		
Chamaidae, unid	rock jingle	low to subtidal	present
Ostrea conchilcola	oyster	mid intertidal	present
Mytilus galloprovincialis	bay mussel	mid to shallow subtidal	common
Bryozoa	moss animals	low intertidal to subtidal	
Zoobotryon verticillatum	soft bryozoan	low to subtidal	common
Urochordata	tunicates		
Styela montereyensis	sea squirt	low	common
Ciona intestinalis	tunicate	low	common
Styela plicata	sea squirt	low	common

community". The undersides of boat floats and docks are commonly colonized by green

algae, barnacles, mussels, limpets, polychaete worms, moss animals (ectoprocts), and sea squirts (tunicates). Bay fishes are attracted to the biofouling habitat because it a constant source of food. The cement groin separating the American Legion marina from the sand beach at 16th Street is colonized by few species on the beach side of the groin, primarily because most of its length is buried by sand. Where exposed, it supports a limited population of barnacles (*Balanus glandula*) in the high tide zone and mussels (*Mytilus galloprovincialis*) in the mid to low tide zone.

2.3.4 Bay Fishes

Over 75 species of fish are known from Newport Bay (Allen 1976; Bane 1968; Marine Biological Consultants and SCCWRP 1980, SCCWRP 2002). Along the Peninsula between 9th St and 13th St, Allen (1976) recorded 19 species of fish during 18 months of sampling between 1974 and 1975. This sampling was conducted midchannel by otter trawl net methods. The numerically dominant species were white croaker (*Genyonemus lineatus*), shiner surf perch *(Cymatogaster aggregata*), white surf perch (*Phanerodon furcatus*), slough anchovy (*Anchoa delicatissima*), deepbody anchovy (*Anchoa compressa*), black surf perch (*Embiotoca jacksoni*), and queen fish (*Seriphus politus*). Bat ray (*Myliobatis californica*), white croaker, and queen fish contributed the most biomass. Other species, such as halibut (*Paralichthys californicus*), diamond turbot (*Hypsopsetta guttulata*), and various bottom-dwelling blennies and gobies are also found in Newport Harbor environments.

Marinas, docks, bulkheads, and groins provide habitat that attract a variety of fishes and these environments may exhibit a greater diversity of fishes than channel and mudflat habitats alone because both soft bottom channel fishes and rock-associated fishes inhabit these environments (Coastal Resources Management, 1993). Hard substrate offers cover, protection, or new sources of food for fishes such as pile perch (*Damalichthys vacca*), pipefish (*Sygnathus* spp.), kelpfish (*Heterostichus* spp.), opaleye (*Girella nigricans*), halfmoon (*Medialuna californiensis*), sargo (*Anisotremus davidsoni*), and kelp bass (*Paralabrax clathratus*).

During a site reconnaissance SCUBA survey conducted by Coastal Resources Management, Inc. in August 2008, round sting ray (*Myliobatis californicus*) and mullet (*Mugil cephalus*) were observed. During surveys conducted at the project site in 2004, four species were observed by SCUBA diving biologists at the site of a proposed marina. These included topsmelt (*Atherinops affinis*), spotted sand bass (*Paralabrax maculatofasciatus*), bay goby (*Lepidogobius lepidus*) and round stingray (*Urolophus halleri*) (Coastal Resources Management 2004).

Other common species recorded from Newport Harbor include arrow goby (*Clevelandia ios*),, California halibut (*Paralichthys californicus*), topsmelt (*Atherinops affinis*), black surfperch (*Embiotoca jacksoni*), white surfperch (*Phanerodon furcatus*) shiner perch (*Cymatogaster aggregata*), and walleye surfperch (*Hyperprosopon argenteum).* Several of these may be present at the site, but were not observed during the underwater surveys.

2.4 ENDANGERED, THREATENED, RARE, OR SENSITIVE MARINE SPECIES

Table 5 lists potential federal and/or state endangered, rare, or non-listed sensitive species and that could be present within or nearby the project area during construction. Species of particular concern and relevance to this project are discussed in detail below.

2.4.1 Plants

Eelgrass, *Zostera marina*. Eelgrass is a marine angiosperm that forms meadows in mud-and-sand substrates of bays and wetland channels. Although it is not a listed species, it is considered sensitive by resource agencies because it is an important biological habitat for invertebrates and fishes. In Newport Bay, eelgrass grows in the lower intertidal and the shallow subtidal substrates at depths between 0.0 and -28 ft. MLLW, although more commonly, at depths shallower than -8 ft. MLLW (Coastal Resources Management, 2005 and Coastal Resources Management, 2008). Surveys using GPS surveying methods of eelgrass in Newport Harbor and Upper Newport Bay indicate prolific growth of this seagrass along Corona del Mar, Balboa Island, Collins Isle, Beacon Bay, Harbor Island, Linda Isle, DeAnza Bayside Peninsula, Castaways, Bayshores Community, and Mariner's Mile extending between Bayshores and the Orange Coast College Rowing Facilities (CRM 2005), although areas within the middle parts of the harbor and Upper Newport Bay experienced significant declines in eelgrass areal cover and density between 2004 and 2008 (CRM 2008, in preparation). Eelgrass is not present along the shoreline between 15th St and 19th St. Eelgrass transplanted conducted along the 15th St to 19th St shoreline in late summer 2004 as part of the U.S. Army Corps of Engineers Lower Newport Harbor Pilot Eelgrass Restoration Project, in coordination with the County of Orange and the City of Newport Beach were unsuccessful (Chambers Consultants, Inc. and Coastal Resources Management, Inc. 2005), likely due to (1) the lateness of the transplant in the growing season and (2) significant rainfall in the months following the transplant.

2.4.2 Invertebrates

There are no sensitive species of marine invertebrates located in the project area.

2.4.3 Fishes

California Grunion *(Leuresthes tenuis).* The California grunion (*Leuresthes tenuis*) is a fish that uses the high intertidal sandy beach habitat of many southern California beaches as spawning habitat (Walker, 1952), including Newport Beach (CRM and Chambers Group, 2002). The grunion is a member of the silversides family, Atherinidae, along with the jacksmelt and topsmelt. They normally occur from Point Conception, California, to Point Abreojos, Baja California. Occasionally, they are found farther north to Monterey Bay, California and south to San Juanico Bay, Baja California. They inhabit the nearshore waters from the surf to a depth of 60 feet. Grunion are not expected to be present in the project area.

TABLE 5
SPECIAL STATUS SPECIES POTENTIALLY PRESENT IN THE MARINA PARK PROJECT AREA

Scientific Name	Common Name	USFWS Status or NMFS Status	CDFG Status	Habitat	Potential to Occur
Plants					
Phyllospadix torreyi	surfgrass	Habitat Area of Particular Concern (HAPC)) for Fisheries Management Plan (FMP) Species under the Magnuson-Stevens Fishery Conservation and Management Act	–	Nearshore rocky intertidal/rocky subtidal	none
Zostera marina	eelgrass	Habitat Area of Particular Concern (HAPC) for Fisheries Management Plan (FMP) Species under the Magnuson-Stevens Fishery Conservation and Management Act	–	Bays, harbors, shallow nearshore water sediments	Not observed at the project in 2003, 2004, 2005, and 2008
Fishes					
Eucyclogobius newberryi	Tidewater goby	FE	–	Shallow marine waters, lower reaches of streams	No potential, extirpated from Orange County
Leuresthes tenuis	California grunion	–	–	Spawns on local open coastal beaches	No potential to occur at the project site

Scientific Name	Common Name	USFWS Status or NMFS Status	CDFG Status	Habitat	Potential to Occur
Hypsypops rubicundus	California garibaldi	Protected under commercial and sport fish regulations	California State Marine Fish , Assembly Bill AB77, 1995	Subtidal rocky reef habitat; resident and territorial species in shallow subtidal rocky habitats	None in West Newport Bay; does occur near the harbor entrance channel in rocky subtidal environment
Paralichthys californicus	California halibut	–	–	Shallow coastal waters, open ocean	High potential
Reptiles					
Chelonia mydas	Green turtle	FE	–	Nearshore and open ocean waters	Rare visitor but unlikely to occur in the waters of West Newport Bay
Eretmochelys imbricata	Hawksbill sea turtle	FE	–	Nearshore and open ocean waters	Rare visitor but unlikely to occur in the waters of West Newport Bay
Birds					
Pelecanus occidentalis	Brown pelican	FE; proposed for delisting	CE	Bays, estuaries, nearshore waters	Forages and rests in project area
Sterna antillarum browni	California least tern	FE	CE	Nests on sparsely vegetated flat substrates, forages in nearby waters	Moderate potential. Forages in the waters of Newport Bay; Nesting habitat occurs in Upper Newport Bay and nearby at the Santa Ana River mouth; least terns will forage on juvenile baitfish in the nearshore waters, Newport Harbor and Upper Bay channels, usually within 5 mi of nesting sites .
Scientific Name	**Common Name**	**USFWS Status or NMFS Status**	**CDFG Status**	**Habitat**	**Potential to Occur**
Charadrius alexandrinus nivosus	Western snowy plover	FT	SSC	Nests on sandy beaches and shores	No nesting habitat present onsite, no potential for individuals to occur on site

Mammals					
Zalophus californianus	California sea lion	MMA		Nearshore and open ocean waters, occasionally enters bays/harbors	Moderate-to-high potential for individuals to be present in West Newport Bay. Locally becoming more abundant in Newport Harbor, and in the vicinity of vessels moored offshore of Lido Peninsula
Phoca vitulina	Harbor seal	MMA		Nearshore and open ocean, occasionally enters bays/harbors	Low potential to be present in West Newport Bay.
Tursiops truncatus	Bottlenose dolphin	MMA		Nearshore and open ocean waters	Rare visitor to Newport Harbor
Eschrichtius robustus	California gray whale	MMA		Nearshore and open ocean waters	Rare visitor to Newport Harbor

FE – Federal Endangered; FT – Federal Threatened; MMA – Protected under Marine Mammal Act
California Department of Fish and Game
CE – California Endangered
SSC – Species of Special Concern
HAPC are subsets of Essential Fish Habitat (EFH) which are rare, particularly susceptible to human induced degradation, especially ecologically important, or located in an environmentally stressed area. Designated HAPC are not afforded any additional regulatory protection under the Magnuson Stevens Fishery Conservation and Management Act (MSA); however, federally permitted projects with potential adverse impacts to HAPC will be more carefully scrutinized during the consultation process (NMFS 2008a)

California halibut. Although the California halibut does not have a formal special species status, it is considered a sensitive species by resource agencies because of its commercial value and a continued region-wide reduction of its nursery habitat in bays and wetlands. California halibut spawn at sea and the larval stages are planktonic. After several months, the larval fish settle to the bottom, and migrate into shallow coastal waters, including Newport Bay. Halibut are distributed throughout the waters of Newport Harbor and Upper Newport Bay, primarily as juveniles, although larger individuals are caught near the ocean entrance and in offshore waters. Young-Of-The-Year (YOTY) prefer shallow waters between about –0.45 meter (1.5 ft) and –1.0 meter (3.5 ft) Mean Lower Low Water (MLLW), whereas juveniles prefer deeper channel bottoms to a maximum depth of approximately 4.5 meters (15 ft) MLLW. After spending nearly nine months in Newport Bay, juveniles will move out into the open coastal environment. This species has a low to moderate potential to occur in the shallow waters of the project area because of the nature of the sand shoreline and the relatively wide shelf of sandy silt sediments.

2.4.4 Marine Reptiles

Marine reptiles do not utilize the local marine waters as a permanent breeding or foraging habitat. However, the green turtle (*Chelonia mydas*) and hawksbill (*Eretmochelys imbricata*), will occasionally occur in the nearshore environment offshore Orange County. Green sea turtles have been reported approximately 20 miles upcoast of Newport Bay in the San Gabriel River where they encounter the warmer, discharged waters of the power generating facilities located farther up the River and Alamitos Bay. (Vivian Cook, Marine Bureau; Allen Powder, Long Beach Lifeguards pers. comm. with R. Ware, CRM, 27 July 2007; Long Beach Aquarium, 2008). Their occurrence within Newport Bay is expected to be rare.

2.4.5 Birds

The State and Federally-listed California least tern (*Sterna antillarum browni*) is a spring-and-summer resident in southern California during the breeding and nesting season. The least tern does not breed or nest near the project site but will forage in Newport Bay and nearshore coastal waters during their March through September breeding season. The nearest least tern nesting sites are located approximately 2.5 miles west (upcoast) at the mouth of the Santa Ana River and 4.2 mi northeast in Upper Newport Bay near the Jamboree Bridge. The state-and federally listed California brown pelican (*Pelecanus occidentalis*) is found in Newport Bay year-around but does not breed locally. The brown pelican utilizes Newport Harbor waters for foraging on baitfish, and the shoreline as resting habitat. This species is proposed for delisting as a federally- endangered species, due to a population resurgence along the southern California coastline.

The site is not a roosting or nesting site for herons, based upon a sensitive species site visit on September 30th, 2009, and an evaluation of the adequacy of the sensitive species

information provided in the project draft EIR and marine biological technical appendix (Hamilton Biological Inc., 2009)

2.4.6 Marine Mammals

In recent years, California sea lions (*Zalophus californicus*) have taken up seasonal residence in the Harbor. While initially concentrated in the southeast section of the harbor between the Pavilion and the entrance channel, they now extend their seasonal distribution to the northwest (West Newport) waters and Mooring Areas J and H seaward of the proposed Marina Park development. Their abundance in the Bay is the result of abundant food resources and potential haul out areas on moored vessels. They are able to utilize boats in the harbor as haul outs because many of the boats have low stern platforms (i.e., dive platforms). Countermeasures have been implemented by the City and boat owners to reduce the ability of sea lions to use vessels as haul out areas, and to reduce the direct and indirect feeding of sea lions through the implementation of ordinances and public education brochures. Their presence is a concern for vessel owners who have experienced damaged vessels or sunken vessels (Orange Newport Beach Harbor Resources Department, 2006; and most recently in August 2008 (Orange County Register, 2008). Their distribution in the West Newport waters may also be related to observed increases in the population of mullet (*Mugil cephalus*) that have been particularly abundant in this section of the Harbor in 2008 (R. Ware, pers. observations). Harbor seals (*Phoca vitulina*) may also occasionally enter Newport Harbor but their presence in Newport Harbor is incidental.

The presence of bottlenose dolphin, and gray whales or other cetaceans would be an extremely rare event in the western section of Newport Harbor.

2.5 SENSITIVE HABITATS

Habitat Areas of Particular Concern (HAPC). Although no eelgrass occurs at the Marina Park project site, Newport Bay in general is estuarine and eelgrass habitat, both of which are considered habitat areas of particular concern (HAPC) for various federally managed fish species (See Section 2.6) within the Pacific Groundfish Fisheries Management Plan (i.e., rockfishes). HAPC are described in the regulations as subsets of Essential Fish Habitat which are rare, particularly susceptible to human induced degradation, especially ecologically important, or located in an environmentally stressed area. Designated HAPC are not afforded any additional regulatory protection under the Magnuson-Stevens Fishery Conservation and Management Act (1997). However, federally permitted projects with potential adverse impacts to HAPC will be more carefully scrutinized during the consultation process (National Marine Fisheries Service, 2007).

2.6 FISH MANAGEMENT PLAN SPECIES

This assessment of Essential Fish Habitat (EFH) for the Marina Park project is being provided in conformance with the 1996 amendments to the Magnuson-Stevens Fishery Management and Conservation Act (FR 62, 244, December 19, 1997). The 1996 amendments to the Magnuson-Stevens Act set forth a number of new mandates for the National Marine Fisheries Service, eight regional fishery management councils, and other federal agencies to identify and protect important marine and anadromous fish habitat. The councils, with the assistance from NMFS are required to delineate EFH for all managed species. Federal action agencies which fund, permit, or carry out activities that may adversely impact EFH are required to consult with NMFS regarding the potential effects of their actions on EFH, and respond in writing to the NMFS recommendations.

EFH is defined as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity". An adverse effect is "any impact which reduces the quality and/or quantity of EFH". Adverse effects may include direct or indirect physical, chemical, or biological alterations of the waters or substrate and loss of, or injury to benthic organisms, prey species, and their habitat, and other ecosystem components. Adverse effects may be sites specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions [50 CFR 600.910(a)].

Impacts to Habitat Areas of Particular Concern (HAPC) are described in the regulations as subsets of EFH which are rare, particularly susceptible to human induced degradation, especially ecologically important, or located in an environmentally stressed area, including eelgrass.

The proposed project is located within an area designated as EFH for the Coastal Pelagics Management and the Groundfish Management Plan designated species. Four (4) coastal pelagic species, (the northern anchovy, pacific sardine, jack mackerel, and Pacific mackerel) potentially occur in the waters offshore of Newport Beach. Six (6) groundfish species also potentially occur within the local project area, including California scorpion fish, vermillion rockfish, calico rockfish, California skate, spiny dogfish shark, and leopard shark (Appendix 1). Of these species, only the northern anchovy comprises a significant portion of fish that occur, and contribute moderate-to-heavy abundances to the nearshore fish, but much less so within Newport Bay. Northern anchovy comprise a portion of the commercial bait fishery in San Pedro Bay and a commercial bait fishing operation operates in the Newport Harbor entrance channel that provides northern anchovy to sports fishermen. This species is a planktivore, and is preyed upon by larger fish and seabirds. Larvae of northern anchovy are also part of the Newport Bay ichthyofauna and icthyoplankton community.

Although several other coastal pelagic and groundfish FMP species are known from the project area, data indicate that their presence is likely sporadic and their numbers in the project region would be extremely low (Coastal Resources Management, 2008).

2.7 INVASIVE SPECIES

***Caulerpa taxifolia*.** *Caulerpa taxifolia* has a characteristic bright green color, flat, leafy fern-like fronds (branches), and a below-ground root system. This noxious algae was found within shallow, enclosed lagoons located at the northeast section of Huntington Harbour and in Agua Hedionda Lagoon in San Diego County in 2001. Although efforts are believed to have eradicated this species over the last two years, this tropical marine algae can be extremely harmful to marine ecosystems because it invades, out-competes, and eliminates native algae, seagrasses, kelp forests and reef systems by forming a dense blanket of growth on mud, sand, or rock surfaces (National Marine Fisheries Service, California Department of Fish and Game and San Diego Regional Water Quality Control Board unpub. brochure). It can grow in shallow coastal lagoons as well as in deeper ocean waters, and up to nine feet in length.

Caulerpa has not been found within Newport Bay despite intensive underwater searches (Coast Keeper 2000; Coastal Resources Management, Inc. 2004, 2005, 2008, in preparation). Newport Bay has been designated as a *Caulerpa* free system (National Marine Fisheries Service 2001 revised 2003). This species was not observed at the project site in October 2003, March 2004, October 2007, and August, 2008 (R. Ware, CRM pers. observation).

3.0 IMPACT ANALYSIS

3.1 THRESHOLDS FOR SIGNIFICANCE

The threshold for significance of impacts to marine biological resources is determined by scientific judgment, and considers the relative importance of the habitat and/or species affected by project implementation. For the purposes of this analysis, the project's effects on biological resources are considered to be significant if it would:

- Substantially affect a rare, threatened, endangered, or candidate plant or animal species, or the habitat of any such species;
- Substantially diminish or degrade the habitat of any marine plant or animal;
- Result in notable net loss of a biotic community that is subject to local, state, and/or federal regulations or that is otherwise of very limited occurrence in the region.
- Interfere substantially with the movement of any resident or migratory fish and wildlife species; or
- Conflict with adopted environmental policies, general plans, or regulatory policies of the community and State of California.

3.2 RELEVANT CALIFORNIA ENVIROMENTAL POLICIES AND ACTS

The California Coastal Act (State of California 1976, amended 1999) provides the basis for protection of land and marine resources within the California coastal zone. The following relevant sections of the Coastal Act apply to protection of local marine resources in the vicinity of the proposed Marina Park project.

Section 30231 of the California Coastal Act:

"*The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through among other means, minimizing adverse effects of wastewater discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with groundwater flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.*

Section 30107.5 of the California Coastal Act.

Environmentally sensitive areas are "any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily be degraded by human activities and developments"

Section 30240 of the California Coastal Act:

(a) *Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.*

(b) *Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade these areas, and shall be compatible with the continuance of those habitats and recreational areas.*

Section 30230 of the California Coastal Act:

Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economical significance. Use of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.

3.3 PROPOSED ACTION

Figures 2a and 2b illustrate the components of the proposed project. Existing mobile homes on the project site will be removed and/or demolished. The basic features of the project will include a public park for passive and active recreation, short-term visiting vessel marina, bathroom and laundry facilities adjacent to the marina, a sailing center and restaurant, tennis courts, and improvements to an existing bathroom.

This impact analysis addresses water quality issues related to the demolition of existing structures, site hydrology, and marine-related impacts associated with the construction of the marina.

Marina facilities will be constructed by excavating a basin out of landside, non marine habitat and dredging a portion of the existing intertidal sandy beach to depths of -12 ft MLLW. The marine will include a groin wall around the marina, three boat basins, ADA gangway, 23 slips to accommodate vessels 40-57 ft in length, dry storage for small boats, lockable kayak racks, and interlocking floats to provide dry storage within two of the 3 basins. Approximately 50 piles will be driven into the bayfloor to support the docks (Source: URS, Inc).

3.4 PROJECT-RELATED ISSUES THAT COULD ADVERSELY AFFECT MARINE BIOLOGICAL RESOURCES

Demolition and construction tasks for the project could potentially affect Newport Harbor marine resources. Particular aspects of this project that have a potential to degrade water quality and the quality of local marine resources include hydrology and site runoff, visitor use, and construction and operation of a marina. This project incorporates upfront Water Quality Best Management Practices that ensure there will be no adverse and significant short-term or long-term effects on local water quality and subsequent adverse effects on marine biological resources. These items include:

3.4.1 Storm Water Pollution Prevention Plan

Land-side construction impacts on water quality and marine resources will be reduced to less than significant with the implementation of a Storm Water Pollution Prevention Plan that incorporates specific Best Management Practices to avoid impacts to water quality for both onshore and water-side construction operations. An Erosion Control Plan will be part of this document. This plan will reduce the potential impacts of airborne dust deposition and waterborne soil erosion during storm events on the marine environment. See Section 4 for a listing of potential construction BMPs.

3.4.2 Post-Construction (Operational) Project Water Quality Management Plan

A Water Quality Management Plan will be prepared to avoid potentially significant effects of the project on water quality and marine resources. The plan will address current drainage systems, improvements to the drainage system to manage storm water and dry weather runoff, hydrology, and mitigation measures to reduce potentially significant project-related effects to less than significant. The Water Quality Management Program will consist of strategies and Best Management Practices (BMPs) that will provide source control for pollutants as well as treatment of runoff constituents.

Additional water quality BMPs will be developed for the construction and operation of the marina.

Implementation of a Water Quality Plan for the construction and operation of Marina Park will reduce potentially significant water quality and hydrological impacts associated with storm water and dry weather runoff to less than significant impacts. Consequently, hydrological and water quality effects originating from the construction of the resort will have less than significant impacts on marine resources with the inclusion of these measures.

3.5 DEMOLITION AND MARINA CONSTRUCTION IMPACTS TO MARINE RESOURCES

3.5.1 Site Hydrology, Water Quality, Noise, Dust, and Pollutant Generation

Implementation of the proposed project may alter the existing drainage pattern of the site. In the short-term, construction activities may result in siltation and erosion as well as potential fuel oil spills, which could result in a decrease in water quality and an increase in turbidity and sedimentation as it relates to the amount of pollution flowing to Newport Bay and the ocean. The project site is under the jurisdictional responsibility of the Santa Ana Region of the California Water Quality Control Board which regulates discharges into the State's waters. As part of its oversight, the state ensures the project is implemented in accordance with federal water quality requirements during grading and construction. More specifically, the Federal Clean Water Act (Section 402[p]) requires discharges of stormwater associated with industrial and construction activity to be regulated by National Pollutant Discharge Elimination System (NPDES) permits. NPDES compliance requires implementation of Best Management Practices (BMPs) for water quality control.

Site Hydrology

A storm water conveyance system will be constructed to manage storm water flowing onto the site, as well as flows generated onsite. The project site, in its existing conditions, drains directly to the bay or the City storm drain system without incorporation of best management practices. Site drainage will be improved and standard Best Management Practices will be included to prevent adverse impacts to bay water quality and biology. The incorporation of the measures proposed by the project's Water Quality Management Plan (WQMP) will greatly reduce existing pollutant discharge to the bay. This is considered a beneficial impact on Newport Harbor water quality.

Storm Water Runoff

Fine **s**ediments generated from the construction activities that might be transported to the bay in storm water runoff would result in a localized short-term impact on water quality and bay marine resources. During rainfall events, sediment flowing to the bay would increase the concentration of suspended sediments, increasing water turbidity. Because the tidal flushing rate within this section of Newport Harbor is extended in this section of the bay (Everest Consultants, Inc. 2007), the material would tend to stay within the local water mass creating an extended period of higher water turbidity. Reductions in submarine light intensity, slight reductions in primary productivity, and reduced subsurface visibility for sight-foraging fishes and seabirds would be expected. These impacts will be mitigated to less than significant with the implementation of the Erosion Control Plan and the Storm Water Pollutant Prevention Plan. Project Water Quality Control Plan BMPs will ensure that Newport Harbor marine biological resources will be protected from short-term construction effects.

With the implementation of the project's long-term WQMP, storm water runoff associated with the project will not result in localized adverse hydraulic effects. Improved drainage system along the bay front will reduce storm drain flows to the beach area and will improve water quality compared to conditions that currently exist, resulting in a long-term, beneficial impact to water quality. Improvements to the storm drain system and implementing the Water Quality Management Plan BMP provisions will result in no significant impacts to water quality in Newport Bay.

Noise and Dust

Intertidal Sandy Beach Habitats and Resources. Noise, and dust generated from the project may result in a temporary reduction in the quality of the sand beach as resting and foraging habitat for shorebirds and seabirds. This would result in a temporary, less than significant impact to these resource groups. Implementation of construction BMPs including the installation of screening around the site will assist in lessening potential construction impacts on seabird and shorebirds. No shorebird or seabird nesting or breeding activity occurs on this local stretch of shoreline further reducing the potential for population-level impacts to these resource groups.

Open Bay Environment. Demolition, grading, and construction of the marina will produce dust from the operation of construction equipment and vehicles on the site. During high velocity, windy conditions, this dust might be transported into Newport Harbor with prevailing northwest winds, or offshore across the Peninsula and to the ocean environment during Santa Ana wind conditions. The addition of dust would result in a short-term, less-than-significant impact that would form a light coating of sediment on the water depending on the velocity and duration of the wind event. The deposition of fine dust in the project area could potentially result in a short-term increase of water turbidity and a reduction in photosynthetic processes. Such a reduction would result in a slight decrease in photosynthetic activity of bay and ocean phytoplankton. However, there would be no long-term impacts to benthic resources resulting from an increase of dust settling on the water.

Because of the expected short duration of any wind events that might generate dust the expected effect will be less-than significant on water quality and marine resources. The generation of dust from the construction site will also be mitigated by the inclusion of project water quality management BMPs .

Pollutant Generation

Typical pollutants generated during demolition and marina construction related-activities could include heavy metals, toxic chemicals, waste materials and debris, fuel, lubricants and other toxins related to construction equipment and its maintenance. If these pollutants enter the bay through airborne or water-borne transport methods, then water quality degradation and potential adverse impacts to marine life could occur, including reduced viability, tissue contamination, and a short-term/and or long term effect on plankton, fish, and benthic resources.

The generation of these pollutants from the construction site will be mitigated by the inclusion and implementation the Water Quality Management Plan and the preparation of both a Storm Water Pollution Protection Plan (SWPPP) and an erosion control plan. Strict adherence to identified source controls and project BMPs in these documents will result in short-term, and less than significant impacts on Newport Harbor water quality and marine resources.

In summary, the impacts of demolition and marina construction activities will be less than significant on Newport Harbor and marine resources with the preparation and implementation of the (1) Water Quality Control Plan, and (2) and a Storm Water Pollution Prevention Plan (SWPPP). These plans and will identify dry season and wet season runoff control measures, source control, and or treatment controls that will be implemented during construction to avoid and/or mitigate potential soil erosion, runoff pollutants, and other storm water constituents.

3.5.2 Marina Construction

Marine biological habitats and resources (plants, invertebrates, fishes, marine mammals, seabirds, federally listed and State-listed marine associated species and sensitive habitats) have a potential to be affected by marina dredging and excavation. Figure 5 illustrates the two components required to construct the marina. Table 6 summarizes the potential impacts of the proposed marina project on marine biological resources.

Landside excavation will be accomplished using dozers, skip loaders, trucks, and other small equipment. Dredging will involve the removal of bayfloor sediments by either a clam shell dredge or by hydraulic dredge for the purpose of providing necessary depths to accommodate vessels to depths of -12 ft MLLW. In addition, cement piles and metal sheet piles will be driven into the sediments to secure the docks.

Pile installation is involved in several areas:

a. Building piles: 12 inch square standard building piles. The pile will be jetted to within five feet of tip elevations and then driven with a diesel hammer of 50,000 ft/lb rating, for the final five feet. It is anticipated that the piles will require approximately 20 blows per foot of driving length, in this case for five feet.

b. Sheet piles for Bulkhead and Groin Wall: 10 to 12 inch in thickness, 3 to 8 feet in width, interlocking pre-stressed concrete elements. A maximum of 285 sheet piles (3ft wide) will be needed to define the basin bulkhead and groin wall. Embedment of these walls below the design dredge depths will be approximately 18 feet to a pile tip elevation of approximately -30.0MLLW. Sheets will be jetted to within two feet of tip elevation and then driven with a diesel hammer of 50,000 ft/lb rating, for the final two feet. It is anticipated that the piles will require approximately 20 blows per foot of driving length, in this case for two feet.

c. Guide piles for the Docks: 14 to 24-inch pre-stressed concrete round or octagonal piles. The inner boat basin would likely use 14 and 16-inch piles. The outer long dock and 56 ft finger may utilize 18 to 24 inch piles. The geotechnical consultant has analyzed all sizes between 14 and 24

inch, and once designed, the Engineer will select the appropriate sized piles for the given loading condition. A maximum of 50 guide piles will be needed to support the basin dock systems. Embedment of these piles below the design dredge depths will be approximately 20 feet to a pile tip elevation of approximately -34.0MLLW. Piles will be jetted to within two feet of tip elevation and then driven with a diesel hammer of 50,000 ft/lb rating, for the final two feet. It is anticipated that the piles will require approximately 20 blows per foot of driving length, in this case for two feet.

d. Gangway Platform Piles: Up to two platforms may be required for the ADA-compliant gangways. Each platform could require up to 4 piles. It is anticipated that 16 inch or 18 inch piles will be required for these platforms. A maximum of 8 piles, 18 inch octagonal, may be required for these platforms. Embedment of these piles below the design dredge depths will be approximately 20 feet to a pile tip elevation of approximately -34.0MLLW. Piles will be jetted to within two feet of tip elevation and then driven with a diesel hammer of 50,000 ft/lb rating, for the final two feet. It is anticipated that the piles will require approximately 20 blows per foot of driving length, in this case for two feet. One of these two platforms may be eliminated in the final dock layout, depending on cost and layout considerations.

It is envisioned that the following sequencing of events would occur to build the boat basin:

a. Initial excavation (approx 5ft) of the basin with traditional earth-moving equipment.
b. Installation of building piles
c. Installation of bulkhead and groin sheets
d. Installation of tieback anchors and backfill
e. Dredging of basin and stockpiling of dredge spoils on-site for drying and transport.
f. Build-out of buildings and park
g. Installation of floating dock and guide pile installation

There is an approximately 20ft of existing landside groin wall and the edge of the American Legion facility. Due to the inherent risks of removing existing walls that may be providing current support to landside structures, this wall would likely be left in-place, and supplemented with a bulkhead or attach a new bulkhead to this existing wall.

Table 6. Habitat Losses and Gains, Marina Park Vessel Marina Project

	Habitat Loss	Habitat Created	**Net Effect**	**Mitigation**
Construction of Marina Basin	0.90 acre of supra tidal (terrestrial), non-marine habitat for construction of marina basin. Depth modifications of 0.10 acre of shallow water marine habitat within and beyond the pierhead to reach project depths of -12 ft MLLW	0.90 acre of shallow water marine habitat created at depths of -12 ft MLLW None; will remain shallow water habitat	0.90 acre increase of shallow water habitat. Beneficial impact to marine resources and Habitat Area of Particular Concern (HAPC).Essential Fish Habitat; provides additional water column habitat for fishes and foraging seabirds, and soft bottom benthic habitat for benthic invertebrates and bottom-foraging fishes Depths will be -12 ft MLLW	None required. Short-term Best Management Practices (BMPs) to avoid adverse water quality impacts to bay resources None required. Short-term BMPs to avoid adverse water quality impacts to bay resources
Dredging of sandy intertidal to create shallow water habitat for marina	0.66 acre loss of sandy intertidal habitat.	Additional 0.66 acre of shallow water marine habitat created at depths to -12 ft MLLW	Loss of 0.66 acre of sandy intertidal. Transition from intertidal seabird and shorebird roosting and foraging habitat and Habitat Area of Particular Concern (HAPC). to shallow water habitat for benthic invertebrates, fishes and water birds and HAPC.	The loss of 0.66 acre of sandy intertidal will be mitigated at an acceptable location within Newport Bay or another southern California embayment based upon a ratio determined by the project proponent G during the project permitting phase. A conceptual and final intertidal habitat mitigation plan will be developed that identifies mitigation goals, mitigation success criteria, costs, location, mitigation requirements, mitigation methods, monitoring, and mitigation success criteria. The mitigation plan will be included in the ACOE and the CCC permit conditions.
Construction of groin wall around the marina and the installation of boat docks and piles	Included in construction of marina basins habitat losses	Increased intertidal and subtidal hard bottom habitat	Net increase in biomass of marine community of organisms living on hard substrate. Habitat will support an assemblage of species typical of Newport Bay's hardscape habitat (algae, mussels, limpets, chitons, sea squirts and moss animals) providing a source of food for bay fishes	None required. Short-term BMPs to avoid adverse water quality impacts to bay resources

3.5.2.1 Impacts on Water Quality

Dredging and marina construction activities will cause a short-term increase in turbidity from the discharging of the suspended fine sediments with the liquefied portion of the dredge material. Localized increases in turbidity can also occur as a result of vessel propeller wash from tug and support vessels. Increased turbidity will reduce the amount of available underwater light that could potentially lead to short-term adverse biological impacts such as a slight decrease in plankton production, the movement of fishes out of the project area, and an interruption of seabird and shorebird foraging behaviors. The extent and orientation of the dredge plume will depend on the prevailing tidal cycle. With ebbing tides, the plume will dissipate into the main channel, and out towards the harbor entrance channel. Incoming flood tides will cause the turbidity plume to disperse farther up towards the Rhine Channel. However, an increase in turbidity is expected to be a localized, less than significant impact with the implementation of Best Management Practices to limit the spread of any turbidity plumes.

The sediment-bound particulates resuspended during dredging could potentially affect water quality by releasing detectable levels of trace metals and organic contaminants in the water column. Organically enriched sediments resuspended into the water column during dredging will cause a slight decrease in dissolved oxygen levels. Tidal currents will slowly dissipate the oxygen-poor water mass and replenish ambient oxygen levels. These impacts are expected to be short-term and less than significant, with a return to ambient water quality conditions upon the completion of the dredging project.

Dredge material is being tested to determine its suitability for ocean disposal, if this option for disposal is pursued (Mike Houlihan, Michael Brandman Associates, pers. com. with R. Ware). However, preliminary analysis of sediment samples collected for the Proposed Newport Regency Hotel Project in 2004 at the same project site indicate that the intertidal sediments are greater than 80% sands, and may qualify for beach fill. Sites considered for sand disposal include the Marina Park site (via truck); China Cove, via truck (Newport Harbor); the Marine Center (base of Newport Pier), via truck; 16th Street to 6th Street via barge with near-shore sand disposal (Balboa Peninsula); and 40th Street to 52nd Street via barge with near-shore sand disposal (Balboa Peninsula). The presence of both sensitive habitats and sensitive species at the China Cove and Balboa Peninsula disposal sites and potential impacts to these resources are provided in Coastal Resources Management, Inc. (2009), Appendix D3 of the project EIR. Contaminant levels are relatively low (Petra 2004c). In addition, water discharged from the dredging operations or during dewatering of sediments will require a National Pollutant Discharge Elimination System (NPDES) permit or a Waste Discharge Requirements (WDR) permit from the California Regional Water Quality Control Board, Santa Ana Region.

Accidental oil or fuel spills that could occur during the dredging operation or marina construction could result in significant effects on the fish and wildlife of the Harbor depending on the severity of the spill. Such events are likely to be localized spills of lighter, refined diesel fuels, gasoline, and lubricating oils that are highly toxic to marine

life. The potential for petroleum-product leaks or spills would be low but the potential for significant, long-term effect on marine resources would be moderate to high.

The inclusion and implementation of a Marina Dredging Management Plan will assist in preventing accidental spills and providing the necessary guidelines to follow in case of an oil or fuel spill and reduce the potential for a significant long term impact to be mitigated to less than significant.

3.5.2.2 Dredging, Excavation, and Marina Construction Impacts on Marine Resources

Habitat Alterations

Table 6 and Figure 5 summarize habitat losses and habitat created for the marina. The project will excavate approximately 0.9 acre of upland of dry material to create a portion of the marina to depths of -12 ft MLLW. This action will result in a beneficial increase of 0.9 acre of shallow water habitat. A total of 0.66 acre of sandy beach habitat will be dredged to create shallow water habitat in the marina basin. Consequently, the project will result in a net beneficial increase of 0.24 acre of bay habitat. However, there will be a shift in the acreage of bay habitat types and habitat values as consequence of dredging 0.66 acre of sandy intertidal habitat to create shallow water areas of the marina basin. A total of 0.1 acre of shallow water habitat will be dredged, but will remain shallow water habitat, and thus, no mitigation will be required. A more detailed discussion of habitat losses is provided in the Benthic Invertebrate Impact section (see below).

The marina will be enclosed by a cement groin wall. Along with the hardscape of dock floats and 50 pilings this component of the marina will create a substantial amount hard bottom habitat that will support species of marine algae and invertebrates typical of Newport Bay (See Table 4).

Plants

Dredging will result in the loss of sandy intertidal and soft bottom habitat, upon which the green algae *Ulva* spp. commonly colonizes. Waterfowl graze on algae as a food source. However, this algae is opportunistic, grows throughout the shallow waters of the bay, and the loss of the algae would be considered a short-term, non significant loss of plant life. Eelgrass (*Zostera marina*) doe not grow in the project area, precluding any impacts to this sensitive species. Marine plants will not be affected by landside excavation activities.

Benthic Invertebrates

The intertidal and the subtidal soft bottom habitat of Newport Bay supports a diverse assemblage of benthic invertebrates (i.e., clams, worms, crustaceans) that are important in the detrital food web because they process organics and release nutrients back to the system. Additionally invertebrates are an important food source for shorebirds and

bottom-foraging fishes. Dredging activity will deepen 0.66 acre of sandy intertidal habitat to permanent shallow water subtidal habitat. Once dredging is completed, benthic invertebrates will colonize the portion of the marina basin created from land excavation, as well as bayfloor dredged to -12 ft MLLW, provided that tidal flushing and water quality within the marina basin is maintained to support marine life.

The loss of the intertidal sandy beach habitat and associated invertebrate populations would constitute a significant, but mitigable loss of 0.66 acre of intertidal habitat and benthic food resources for foraging shorebirds. The loss of 0.66 acre of sandy intertidal will be mitigated at a mitigation ratio determined by the project proponent during the project permitting phase. A conceptual and final intertidal habitat mitigation plan will be developed that further refines habitat losses, identifies mitigation goals, mitigation success criteria, costs, location, mitigation requirements, mitigation methods, monitoring, and mitigation success criteria. The mitigation plan will be included in the ACOE and the CCC permit conditions. The project has an overall net benefit with a gain of 0.24 acre of shallow water habitat based upon the creation of 0.66 acre of shallow water habitat from upland habitat, and the loss of 0.66 acre of sandy intertidal habitat (deepened to create shallow water habitat). .

Piling and groin wall associated flora and fauna

The installation of the groin wall surrounding the marina and the installation of the 55 support piles for the docks will occur following excavation of land soils and following project dredging. Therefore, the installation of the groin wall and piles will not impact marine resources. Piling-and-groin wall associated flora and fauna will colonize the hardscape soon after the groin wall and the piles are installed Within one to three years, the piling community is expected to be fully developed assuming successful recruitment and recolonization occurs and water quality and adequate flushing is maintained.

Fishes

The project area fish community consists of approximately 19 species (Allen 1976). The most common species are shiner surf perch, white surfperch, slough anchovy, and black perch. During summer 2008 surveys at the project site, mullet were also extremely common (Coastal Resources Management, Inc unpublished data).

There will be no direct mortality of open water (schooling) fishes during dredging. Some mortality of bottom-dwelling species such as gobies may occur. However, these losses will be short-term as other individuals migrate into the area created for the marina and colonize the newly exposed sediments within one year based upon Allen's (1988) study of how fast fish recolonized the Unit I and Unit II basins following the 1985 dredging project. Secondary impacts of increased water turbidity will be less than significant. A greater-than ambient suspended sediment load related to higher turbidity may reduce the ability of both visual foraging fishes to feed (i.e., surfperch and halibut) and planktivores (i.e., topsmelt, anchovy, juvenile surfperch, and juvenile sciaenid). In addition, water column dissolved oxygen concentrations may decrease due to the resuspension of

organically-enriched sediments. These impacts would physiologically stress the fish, and result in their temporarily movement out of the area to feed. Turbidity will return to ambient levels upon cessation of dredging through tidal flushing and circulation and fishes would return to the area.

Non-Endangered Water Birds

The most common groups of non-endangered species of water birds to be present within the location of the marina construction and dredging activity are seabirds (gulls, cormorants), waterfowl (mallards), and various shorebirds (i.e., willets, marbled godwits, sanderlings). These species may avoid the marina construction zone due to noise, interruption of resting areas and foraging sites, resulting in a short-term, less than significant impact on the local water bird population.

Roosting areas for seabirds and shorebirds, and intertidal foraging habitat for shorebirds will be permanently replaced (see discussion of benthic invertebrates) resulting in a significant impact to bird habitat that would require mitigation as described above (See Benthic Invertebrates). Once construction is completed, marine birds will return to the unaffected areas of sandy beach, and non-endangered species of birds will use the roosting areas of the groin walls. No mortality of marine birds will occur as a result of marina construction or dredging activities.

Marine Reptiles

Marine reptiles are protected under the Endangered Species Act. See Endangered Species Section below.

Marine Mammals

All marine mammals are protected under the Marine Mammal Act (1972). See Endangered Species Section below.

Endangered, Threatened, Rare, or Sensitive Species

Plants. No sensitive species of marine plants occur within project intertidal or subtidal habitats. The nearest eelgrass habitat is located 0.9 mile east of the project area at the Newport Yacht Club (Coastal Resources Management, Inc. (2007).

Benthic Invertebrates. No sensitive species of benthic invertebrates occur in the project area.

Fishes. The California halibut is a sensitive marine fish but does not have official status as such. This species is an important commercial and sport fish resource that uses Newport Harbor as nursery habitat. The proposed project does not support a large population of halibut, although some may be present. Dredging activity will temporarily degrade soft bottom subtidal habitat where this species is present, but individuals will

move to non-impacted areas precluding any direct or indirect adverse impacts. Proposed project construction activities will not result in the mortality of any individuals. Habitat degradation will be a short-term, less than significant impact on halibut. Once dredging

and the marina basins are completed, additional soft bottom and open water habitat will be available for this species provided that tidal flushing and water quality within the marina basin is maintained to support marine life.

Marine Reptiles. The potential for sea turtles to be in the project area is extremely low. No impacts are anticipated on this resource group.

Marine Birds. Brown pelicans and California least terns forage in Newport Harbor waters in the general vicinity of Marina Park. Turbidity plumes that would spread away from the dredge area could potentially affect their foraging behavior by limiting their ability see their prey, and causing them to search other nearby areas of Newport Harbor for food. This could result in a locally significant impact to endangered species, and in particular, the California least tern. Least terns are present in the region between March through late September during their breeding season. They forage within several miles of their nesting sites at Bolsa Chica Marsh, and Upper Newport Bay. During this period, adults will forage on juvenile baitfish and take their prey back to their fledglings. Brown pelicans however, do not breed in the project region and therefore, an alteration of their foraging behavior would not affect young-on-the-nest. Both species may react to construction disturbances (noise and vessel activity) by also altering their normal foraging behaviors. No direct mortality of endangered seabirds will result from the dredging or excavation activities.

To mitigate the potential for a locally significant impact to least terns and brown pelicans related to turbidity, a silt curtain should be placed around dredging and excavation activity when feasible to limit the spread of any turbidity plumes into Newport Harbor (See Section 4).

Marine Mammals.

Dredging and pile driving activities would be a minimum of 250 feet (76 meters) from the nearest vessels in Mooring Area H anchorage. Infrequently, sea lions (and/or harbor seals) may swim to this section of the harbor, and may, on occasion, haul out on improperly-maintained vessels. The impacts of both dredging and pile driving on marine mammals is discussed below.

Dredging. Both hydraulic and clamshell dredging would be used for the Marina Park project. Hydraulic dredging would be used to remove the upper layer of fine material and clamshell dredging would be used to remove the deeper, sandier portions of the material.

The measured sound exposure levels of a clamshell dredge may range between 75-88 dBA (re 20 /-lPa) at 50 feet. Animals have been observed flushing from haul out sites at a

sound exposure level of less than 100dBA, and it is possible that marine mammals may modify their behavior as a result of the noise produced by the pile driving and dredging operations. (Source: NMFS comment).

The duration of such noise would be short, 30 days and the work at each site would be in different locations and at different times. Based on Port of Los Angeles responses to comments on the Port of Los Angeles Channel Deepening Project EIR/EIS, NMFS Comment NMFS 08, page 14-08, April 2009) underwater noise from the clamshell dredging would be 150-162 dB (re1 µPa) in LA Harbor, which is below the designated level A harassment threshold of 190 dBrms (re 1 µPa) for pinnipeds. This would imply that clamshell dredging effects for pinnipeds, or any other marine mammals near the Marina Park Project site would be less than significant.

Hydraulic dredging activity at the Marina Park project site would result in less sound production than clam shell dredging, and therefore, will not result in significant sound effects on sea lions or other marine mammals.

Pile Driving. Pile driving in the air and water could cause seal lions to temporarily move farther away from these activities, such as to other areas of the bay, although the sea lions are anticipated to adapt to noise and continue to be present in the general area of marina construction. It is expected that pile driving and dredging activity will occur during a relatively short-period (two months), which limits the potential for adverse effects, if any to occur. Breeding would not be affected because sea lions do not breed in the Harbor. Sound pressure waves in the water caused by pile driving could temporarily affect the hearing of marine mammals (primarily sea lions) if swimming near the proposed marina construction site.

The following information is extracted the Port of Los Angeles, Pacific L.A. Marine Terminal LLC Crude Oil Terminal Final SEIS/SEIR 3.3-23 and 3.3 24 in regards to the NMFS comments on the effects of noise in pinnipeds relative to pile driving in L.A. Harbor.

“Pinnipeds appear to have greater tolerance to noise levels than cetaceans. Kastelein et al. (2006) demonstrated that captive seals avoid zones where the sound pressure levels were louder than 107 dBrms (re 1 µPa), but noted that it is possible that in the wild, seals may tolerate higher levels, in order to get food, escape predators, or stay with a pup. Finneran et al. (2003) found no measurable Temporary Threshold Shift (TTS) at sound pressure levels up to 178 to 183 dB (re 1 µPa) for California sea lions. a sea lion, harbor seal, and northern elephant seal at sound pressure levels over periods of 25 to 50 minutes. Increasing the exposure duration from 25 to 50 minutes had a greater effect on threshold shifts than increasing the exposure level from 80 dB original sound source level (SL) (137 to 159 dBrms re 1 µPa) to 95 dB SL (152 to 174 dBrms re 1 µPa); SELs resulting in TTS onset ranged from about 183 to 206 dB (re 1 µPa2 s). Kastak and Schusterman (1996) reported TTS in California sea lions exposed to airborne noise from nearby construction.

Pile driving produces noise levels of 175 to 205 dBrms 177 to 220 dB (re 1 µPa) at 33 ft (10 m) depending on the material and size of the piles (Caltrans 2007, Hastings and Popper 2005). Caltrans (2007) data indicate the sound level for the proposed steel piles could be as high as 195 dBrms at 33 ft (10m). In comparison, an underwater sound level of 180 190 dBrms (re 1 µPa) has been designated as the 12 level A harassment level for pinnipeds (Federal Register 2005), representing a 13 potential effect level for marine mammals occurring close to construction noise 14 sources in the Outer Harbor.

Observations during pile driving for the San Francisco-Oakland Bay Bridge East Span seismic safety project showed minimal response in harbor seals while sea lions swam rapidly out of the area (Caltrans 2001). In water, sound transmission loss is between 3 and 6 dB per doubling of distance, with approximately 4.5 dB per doubling of distance in nearshore waters (Vagle 2003). However, at distances of less than about 330 feet (100 m), the transmission loss (rate of attenuation) can be less (Caltrans 2007). For this project, marine mammals such as pinnipeds could experience sound levels approaching Level A harassment levels at around 100 m (330 feet) from the pile driving. This estimate accounts for the size of the largest steel piles, the power of the hammer that would be required to drive them, the lower rate of attenuation close to the pile, and uncertainty in the sound propagation rate that depends on site-specific characteristics (Caltrans 2007). “

Few, if any, individual sea lions or marine mammals would be expected the Marina Park construction site. As discussed in the EIR, any sea lions or other marine mammals present would not be harmed, because they would likely either move out of range of sound produced by pile driving, or they would adapt to expected sound intensities. The effect would be of short duration for each pile, that would occur infrequently over a two-month period during marina dredging and construction. In addition, the time to drive the piles (2 months) in Newport Harbor is expected to reduce the potential for pinnipeds to be present in the project area. The size of the piles to be driven for the Marina Park project (16 and 24 inch piles are smaller in diameter than those typically used for commercial port shipping operations (see above analysis), and therefore, the sound intensity produced for the Marina Park Project is likely to be less than that observed in the Port of Los Angeles.

Based on observations at the Marina Park project site, sea lions tend to be present in the spring and summer, and not during the late autumn or winter. Therefore, it would be advisable for the City to drive piles and (conduct dredging operations) during the late-autumn to winter period to lessen the potential for pinnipeds to be affected by pile driving (and dredging) operations.

However, the City will add a mitigation measure to the Marina Park project that requires slowly ramping up pile-driving activities (referred to as a “soft start”) at the start of pile-driving activities (at the beginning of the day and at restarting of construction after lunch breaks or other pile driving interruptions of longer than 15 minutes). The added mitigation measure reads as follows:

- The contractor shall be required to use sound abatement techniques to reduce noise and vibrations from pile-driving activities. Sound abatement techniques shall include, but not be limited to, vibration or hydraulic insertion techniques, drilled or augured holes for cast-in-place piles, bubble curtain technology, and sound aprons where feasible. At the initiation of each pile-driving event and after breaks of more than 15 minutes, the pile driving shall also employ a "soft-start" in which the hammer is operated at less than full capacity (i.e., approximately 40 to 60 percent energy levels) with no less than a 1-minute interval between each strike for a 5-minute period.

- A biological monitor shall be on site to monitor effects on marine mammals. The biological monitor shall also note (surface scan only) whether marine mammals are present within 100 meters (333 ft) of the pile driving and, if any are observed, temporarily halt pile driving until the observed mammals move beyond this distance.

The operation of the hammer at 40 to 60 percent energy level during the soft start of pile driving is expected to result in similar levels of noise reduction (40 to 60 percent) underwater. Likely sea lions will swim away from the area, after pile driving has occurred.

While impacts from pile driving on marine mammals were found to be less than significant in the Marina Park EIR, this mitigation measure will further reduce the potential impact.

The soft-start approach to pile driving would also prevent "take" of marine mammals, and therefore, the City believes that an Incidental Harassment Authorization under MMPA will not be required.

Based on the expected levels of impacts to marine mammals for the project, mitigation measures identified for reducing pile-driving effects on marine mammals, sound noise levels below that expected to be below that identified as harassment during dredging operations, and current City of Newport Beach measures to ensure sea lions will not haul out in the project area, the City believes that an application to the NMFS for an Incidental Harassment Authorization, under Section 101 of the Marine Mammal Project Act is not necessary.

Fishery Management Plan Species (FMP), Essential Fish Habitat Analysis

Project activities that could potentially affect identified Coastal Pelagic FMP species (northern anchovy juveniles) and HAPC (estuarine habitat) include increased water turbidity caused by the site excavation, pile installation, and dredging. These impacts could result in (1) the avoidance of juvenile and adult FMP species to the affected, turbid waters, (2) an increase in the suspended sediment load in the water column that could introduce contaminants to FMP species, and (3) the clogging of the gill apparatus of filter feeders (engraulids) that would reduce the ability of the fish to breathe and/or feed.

Groundfish species are likely to be extremely rare or absent in the Marina Park project area. However, should they be present, the potential for direct mortality on juveniles or adults of is minimal-any impacts resulting from project turbidity would result in species avoiding the project area.

Based upon the life histories and the distribution of identified FMP species that indicate coastal pelagic and groundfish-managed species occur in very low abundances in Newport Harbor, and in particular, in the West Newport Harbor project area. The potential for adverse short-term impacts on FMP species related to the Marina Park project is less than significant.

Estuaries are considered Habitats of Particular Concern (HAPC) for various federally managed fish species within the Pacific Groundfish Fisheries Management Plan of the Magnuson-Stevens Fishery Conservation and Management Act (1997). The excavation of the landside area will result in creation of 0.9 acres of estuarine habitat for benthic invertebrates, fishes, water fowl and seabirds, and result in a beneficial impact to fishery habitat in Newport Bay.

There is no eelgrass in the project area, nor has it historically been present. The alteration of the shoreline at depths to -12 ft MLLW will not result in the loss of potential eelgrass habitat, as defined within the Southern California Eelgrass Mitigation Policy (NMFS, 1991 as amended).

Invasive Species

Caulerpa algae is not present at the site of the proposed marina (CRM 2004). However, a *Caulerpa* algae survey will be conducted according to the National Marine Fisheries Service Control Protocol (http://swr.ucsd.edu/hcd/CaulerpaControlProtocol.htm) prior to marina construction. The City will conform to the 2008 Caulerpa Control Protocol, which requires survey results to be submitted to NOAA and California Department of Fish and Game (CDFG) within 15 days of completion. This protocol also requires that NOAA and CDFG be notified within 24 hours if Caulerpa is identified at a permitted project site. If this species is found, then protocols for the eradication of *Caulerpa* will be implemented to remove this species from the project area.

3.6 LONG-TERM IMPACTS OF LANDSIDE OPERATIONS ON WATER QUALITY

3.6.1 Water Quality

With the implementation of the Water Quality Management Plan and a Storm Water Protection Plan (Section 4), there will be no significant impacts on Newport Bay water quality resulting from the use of Marina Park onshore facilities.

3.7 LONG-TERM IMPACTS OF VISITOR USE ON WATER QUALITY

The public beach between 16th and 19th Streets will continue to be a popular recreational area, and visitor use will likely increase. The volume of trash and debris generated from beach use will also likely increase. This has a low potential to degrade water quality, and impact marine life, provided that City maintenance of the area continues to be effective.

BMPs to reduce the potential for visitor-use impacts on Marina Park should be included in the project's Water Quality Management Plan (Section 4). These could include, but not be limited to adding additional signage to remind visitors to use trash receptacles, and providing conservation brochures to visitors who visit Marina Park.

3.8 LONG TERM MARINA IMPACTS ON MARINE RESOURCES

3.8.1 Water Quality

Tidal Flushing. Water quality within the proposed marina will be governed by its flushing capacity (Everest International Consultants, Inc. 2008). Water quality analyses conducted by Everest indicated that tidal flushing rates would be poor and the flushing capacities are well below the EPA guidelines which suggest adequate tidal flushing to maintain water quality of marina basins requires flushing reductions (the amount of a conservative substance that is flushed from the basin) ranging from 70% to 90% over a 24-hour period. Even with eliminating the existing groin system, the improvement is not enough to provide good water quality for the marina basin.

Inadequate tidal flushing in the marina basin would result in lowered dissolved oxygen levels, higher water temperatures, poor water transparency, a potential for eutrophication (a process where water bodies receive excess nutrients that stimulate excessive plant growth), and increased sedimentation. Poor tidal flushing would also exacerbate water quality issues in this region of the bay since the tidal flushing rate in this part of the Harbor is already poor (30 days) outside the proposed marina in front of the swimming beach and the American Legion Marina.

Poor flushing may also result in the potential for maintenance dredging to remove trapped sediments during the long-term operation of the marina. Maintenance dredging programs, conducted under either the City's Army Corps of Engineers blanket maintenance dredging permit or an Army Corps of Engineers individual dredging permit would result in the periodic removal of soft bottom benthic organisms, the resuspension of bottom sediments that will increase water column turbidity, and periodic releases of trace metals and organic contaminants into the water column. Dissolved oxygen levels will be reduced slightly because of the resuspension of organic materials in the dredged sediments. The short-term impact on water quality would be potentially significant, and also result in short-term significant impacts to marine life.

Unless mitigated, poor tidal flushing within the marina would result in a significant, long-term impact on Newport Harbor water quality and would severely limit the colonization of marina habitats by plants, invertebrates and fish. See Section 4 for mitigation measures that will reduce the impact of poor tidal flushing on water quality and marine resources to a less-than-significant impact.

Marina Tenant Impacts. Water quality will also be governed by the practices of the tenants relative to their compliance with ordinances, laws, and guidelines related to discharges, vessel maintenance and marina maintenance. Periodic and/or uncontrolled discharges of various pollutants, oils, greases, and wastes will result in a long-term significant adverse effects on water quality and local marine life. Surface runoff from the marina will also be regulated through NPDES permit for storm water discharges. Implementation of the creation and the implementation of a Marina Management Plan (Section 4) will reduce potential long-term water quality impacts to less than significant.

3.8.2 Marine Resources

3.8.2.1 Non-sensitive Plants

The presence of marina hardscape (docks, pilings, and groin walls) will promote the growth and establishment of algal species typical of Newport Bay hardscape areas. This will result in a beneficial impact to marine plant productivity assuming water quality and tidal flushing is maintained in the marina.

3.8.2.1 Impacts to Benthic (bottom-dwelling) Resources

The loss of the intertidal sandy beach habitat and associated invertebrate populations would constitute a significant, but mitigable loss of 0.66 acre of intertidal habitat and benthic food resources for foraging shorebirds. The loss of 0.66 acre of sandy intertidal will be mitigated at an acceptable location within Newport Bay or another southern California embayment based upon a ratio determined by the project proponent during the project permitting phase with the knowledge that the project has an overall net gain 0.9 acre of deep water habitat. The shift to shallow water habitat will result in an increase of 0.9 acre of soft bottom subtidal habitat for soft bottom benthic organisms (i.e., clams and worms) which is a beneficial impact to marine resources (See Section 3.5.2.3). Mitigation for this loss is described in Section 4.

Hard substrate of pilings, retaining walls (bulkheads and groins) and docks will be created which will provide attachment surfaces for intertidal and subtidal hardscape associated plants and animals such as algae, barnacles, mussels, limpets, and limpets, resulting in a beneficial impact to hard substrate-associated plants and invertebrates. Many of these organisms are food for fishes. The increased surface area and additional marine habitat afforded by the presence of hard substrate will increase species diversity of both invertebrates and algae in the project area which will also attract a greater diversity of fish to the project area because of an increase in food supply and increased habitat diversity.

3.8.1.2 Impacts to Fishes

Marina operation will result in a beneficial impact to fishes (i.e., topsmelt, perch, sand bass, flat fish and sting rays) because an additional 0.9 acre of shallow water habitat will be created, provided that water quality is maintained to support marine life. The addition of the bulkhead wall, pilings, and docks will also attract fishes (i.e., perch) who will forage on plants and invertebrates attached to the hard substrate. Additional soft bottom habitat created will provide additional foraging habitat for bottom-feeders, such as flat fish, gobies, and sting rays.

3.8.1.3 Impacts to Non-endangered Shorebirds and Seabirds

The presence of the new marina will provide seabirds with roosting and open water foraging habitat, although this will be at the expense of their current foraging and resting habitat on the existing sandy beach. Both shorebirds and seabirds, however, will also be permanently displaced to the remaining sandy beach habitat west of the marina. In the long-term, there will be a loss of sandy intertidal habitat as a consequence of marine construction (significant but mitigable), as described in Section 3.5.2.3 resulting in a mitigation requirement to offset seabird and shorebird habitat.

3.8.1.4 Impacts to Marine Mammals

See Section 3.8.1.6.

3.8.1.5 Impacts to Endangered Species and Sensitive Species

Plants. The proposed marina will be excavated and dredged to a depth of -12 ft MLLW, below the depth range in Newport Bay to support eelgrass in this part of the Harbor. Therefore, there will be no long-term effects on this species, since appropriate habitat will not be present.

Invertebrates. No endangered species of invertebrates will be impacted by the presence or the operation of the proposed marina.

Fishes. California halibut will be beneficially impacted by the creation of additional soft bottom habitat from (1) the excavation of 0.9 acre of non-marine habitat and the dredging and deepening of 0.66 acre of intertidal sand beach habitat. This will provide additional shallow water nursery habitat in Newport Harbor.

Reptiles. The proposed project will have no impact on marine reptiles (sea turtles) due to their absence in Newport Harbor.

Marine Mammals. There will be no long-term impacts on marine mammals resulting from the presence or operation of the marina. Although sea lions may occasionally swim

into the marina, they are not expected to haul out if measures are taken to deter their presence. Cetaceans (whales and dolphins are not expected to enter this part of Newport Harbor, precluding potential impacts to these species. The City will work with NMFS to ensure that project design features of the Marina Park Project will include design features to low-lowing docks on the water, to non-lethally deter pinnipeds, specifically sea lions, from hauling out. In addition, the City has a City-ordinance, and an in-place program for all commercial and private vessels designed to deter marine mammals from hauling out on vessels. These are described at the City's website at:

http://www.city.newport-beach.ca.us/HBR/Sea%20Lion%20Ordinance.pdf

http://www.city.newport-beach.ca.us/HBR/Sea%20Lion%20Deterrents.pdf;

http://www.city.newport-beach.ca.us/HBR/Pulibc%20Information%20bulletin.pdf

http://www.city.newport-beach.ca.us/HBR/Public%20Information%20Bulletin%20-%20Commercial%20(2).pdf

Based on the expected levels of impacts to marine mammals for the project, mitigation measures identified for reducing pile-driving effects on marine mammals, sound noise levels are expected to be below that identified as harassment during dredging operations, and current City of Newport Beach measures to ensure sea lions will not haul out in the project area, the City believes that an application to the NMFS for an Incidental Harassment Authorization, under Section 101 of the Marine Mammal Project Act is not necessary.

Seabirds. There will be no long-term adverse impacts on endangered species of seabirds resulting from the presence or operation of the marina. The creation of shallow water habitat in the new marina will provide additional foraging habitat for these species, resulting in a beneficial impact to endangered species of seabirds.

3.8.1.7. Impacts to Fishery Management Plan Species. Based upon the life histories and the distribution of identified FMP species that indicate coastal pelagic and groundfish-managed species occur in very low abundances in Newport Harbor, the potential for long-term, adverse impacts is less than significant. The only managed species likely to be present in Newport Bay will be the northern anchovy, which is unlikely to be benefited or adversely affected in this part of Newport Harbor due to their limited numbers.

3.8.1.8 Impact To Sensitive Habitats

See Section 3.5.2.3 and Table 6 for a discussion of impacts to sensitive habitats. The loss of the intertidal sandy beach habitat and associated invertebrate populations would constitute a significant, but mitigable loss of 0.66 acre of intertidal habitat and benthic food resources for foraging shorebirds. The loss of 0.66 acre of sandy intertidal will be mitigated at an acceptable location within Newport Bay or another southern California embayment based upon a ratio determined by the project proponent and ACOE, NMFS, and the CDF&G during the project permitting phase with the knowledge that the project has an overall net gain of 0.9 acre of shallow water habitat. Since Newport Harbor is

considered an estuarine Habitat of Particular Concern (HAPC) under provisions of the Magnuson-Stevens Fishery Conservation and Management Act (1997), this loss is considered a significant, but mitigable adverse impact on an HAPC. Mitigation for this loss is provided in Section 4.

3.8.1.9 Impacts to Invasive Species

Caulerpa is not currently present at the proposed marina site. In the event that it colonizes the marina, an eradication program would be implemented immediately under the supervision of the Regional Water Quality Control Board, National Marine Fisheries Service, and the California Department of Fish and Game according to the *Caulerpa* Eradication Protocol (http://swr.ucsd.edu/hcd/CaulerpaControlProtocol.htm).

Informational and educational pamphlets alerting boaters and visitors of this potentially destructive species should be included in the Marina Management Plan.

4.0 MITIGATION MEASURES

4.1 RUNOFF WATER QUALITY

Planning Documents. With the preparation and implementation of the following documents and all required Best Management Practices contained in the plans, potential water quality impacts on Newport Harbor related to site construction and operation will be reduced to less than significant:

- **Post-Construction (Operational) Project Water Quality Management Plan and**
- **Storm Water Pollution Prevention Plan**

Specific BMPs should include:

Construction BMPs should include the following:

- Dust Control: Water will be sprayed in newly graded areas to prevent grading activities dust to be blown to adjacent areas.
- Construction Staging: Specific areas will be delineated for storage material and equipment, and for equipment maintenance, to contain potential spills.
- Sediment Control: Sand bags or silt fences will be located along the perimeter of the site. Existing inlets and proposed area drains will be protected against intrusion of sediment.
- Tracking: Tracking of sand and mud on the local street will be avoided by tire washing and/or road stabilization. Street cleaning will be done if tracking occurs.
- Waste Disposal: Specific area and/or methods will be selected for waste disposal. Typical construction waste include concrete, concrete washout, mortar, plaster, asphalt, paint, metal, isolation material, plants, wood products and other construction material. Solid waste will be disposed of in approved trash receptacles at specific locations. Washing of concrete trucks will be done in contained area allowing proper cleanup. Other liquid waste will not be allowed to percolate into the ground.
- Construction dewatering will require approved permits by the California Regional Water Quality Control Board and the City.
- Maintenance: Maintenance of BMPs will take place before and after rainfall events to insure proper operation.
- Training: The SWPPP will include directions for staff training and checklists for scheduled inspections.
- Installation of screening around the site will assist in lessening potential impacts on seabird and shorebirds.

[1] **Source: Metro Pointe Engineers, Inc. 2004**

These plans shall be completed prior to the initiation of construction and included in

construction bid packages to the contractors and be part of project's long-term management requirements.

4.2 MARINA CONSTRUCTION AND OPERATION

4.2.1 Planning Documents.

- A Marina Management Plan shall be developed by the applicant to identify construction and long-term operational BMPs to reduce the level of potential water quality impacts to less than significant. This document shall be developed and included in marine construction bid packages and implemented as a requirement of the long term operation of the project.

With the implementation of the Marina Management Plan, and planning documents and Best Management Practices potential water quality impacts on Newport Harbor will be reduced to less than significant. This will significantly reduce the potential for adverse impacts to intertidal and subtidal marine resources. The plan should provide boaters with reasonable BMPs, safety guidelines, and steps to take in response to accidental spills, leakages and fires to reduce the potential for water quality degradation. In addition, two pamphlets *The Guide to Clean, Green Boating* (California Department of Fish and Game 1999) and *Clean Boating* (California Department of Boating and Waterways (undated material) should be distributed and made available to management and marina tenants. These are available through the City of Newport Beach Harbor Resources Department.

Clean Marinas California Program (2006) has developed a guidebook for to making marinas environmentally clean facilities and to help protect the state's waterways from pollution. This guidebook is available at http://cleanmarinascalifornia.org. It is recommended that a copy of this document be kept onsite in the Marina Office.

Examples of shoreline and boat dock BMPs[1] include:

- Limiting heavy equipment use to the backshore portions of the beach.
- Prohibit boat in-water maintenance and discharge of waste.
- Provide easily accessible restrooms and trash receptacles.
- Provide fire fighting and spill containment equipment.
- Additional BMPs for marina construction and operation will be integrated into the project's Water Quality Management Plan.
- Dispose of used oil, antifreeze, paints, and other household chemicals properly.
- Avoid spills of hazardous or polluting material and prepare guidelines for remediation of such occurrences.
- Affix signs educating user of the property about BMPs.

- Scheduled inspections.
- Long-Term Maintenance: As design progresses, the owner's plan for the long-term and continuous maintenance of all on-site BMP's requiring ongoing maintenance will be developed. This plan will include his acceptance of the responsibility for the on-site maintenance of all structural and treatment control BMPs.
- Maintenance of a Water Quality Management Plan report, its distribution to lessees, and assignment of specific responsibilities by the owner.

4.2.2 Specific Dredging BMPs to reduce impacts to water quality and marine resources

- The dredging contractor shall be required as part of the dredging contract to ensure that dredging activities shall be conducted so as not to disturb sensitive biological habitats and resources in Newport Bay.
- No vessel discharges are allowed within Newport Bay.
- Dredging and spoils disposal must be planned and carried out to avoid significant disruption to marine and wildlife habitats and water circulation.
- Prior to the issuance of a grading permit, the City of Newport Beach Public Works Department shall be provided with evidence that all appropriate permits or clearances have been obtained from the U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Coast Guard, and Regional Water Quality Control Board.
- Dredging and excavation operations will be surrounded with a silt curtain to reduce turbidity from spreading outside the marina construction site and to mitigate the potential for a locally significant impact to endangered brown pelicans and least terns. In addition, Best Management Practices that will further reduce the impact of turbidity include using appropriate machinery when dredging and transporting materials, and employing proper maintenance and operation on equipment (including adequate training, staffing, and working procedures. Turbidity monitoring should be conducted during dredge operations to insure compliance with standards set forth by the Santa Ana Regional Water Quality Control Board.
- Treatment of extracted water, if required, shall be conducted in a manner and at a location approved by the City of Newport Beach City Engineer and the Santa Ana Regional Water Quality Control Board.
- Provisions shall be made, as necessary, for treatment of hydrogen sulfide to comply with water quality standards and to control odors from the dewatering process.
- The dredging contractor shall conduct dredging activities in accordance with the approved dredging permit from the U.S. Army Corps of Engineers.

- Conditions imposed by the Regional Water Quality Control Board and the Department of Fish and Game will be incorporated into the project.

- Should ocean disposal be required for the project, project operations will require that the scow doors used to release dredged material remain closed until the scows are towed to the disposal site.

- To prevent long-term impacts on local water quality due to potential tidal flushing issues the following mitigation measure is recommended:

4.2.3 Mitigation for Adverse Water Quality Impacts Related to Poor Flushing in the Marina

- Mechanical flow enhancement devices should be installed, if feasible, to improve tidal circulation within the marina (Everest International Consultants, Inc. 2008) to mitigate potential long-term, adverse impacts on water quality and marine biological resources. Other methods of providing increased circulation should also be considered.

4.2.4 Mitigation for the Loss of Intertidal Soft Bottom Habitat and Seabird/Shorebird Foraging and Roosting Habitat

- The loss of 0.66 acre of sandy intertidal will be mitigated at an acceptable location within Newport Bay or another southern California embayment based upon a ratio determined by the project proponent and ACOE, NMFS, and the CDF&G during the project permitting phase. A conceptual and final intertidal habitat mitigation plan will be developed that further refines habitat losses, identifies mitigation goals, mitigation success criteria, costs, location, mitigation requirements, mitigation methods, monitoring, and mitigation success criteria. The mitigation plan will be included in the ACOE and the CCC permit conditions.

- In accordance with Public Resources Code 21081.6, a mitigation monitoring plan must be developed to monitor the success of the habitat replacement. A five-year monitoring program is recommended.

- The location of a suitable replacement site is under study and shall be approved by the U.S. Fish and Wildlife Services (USFWS), California Department of Fish and Game (CDF&G), and National Marine Fisheries Service (NMFS) prior to approval of the marina construction permit issued by the ACOE and the California Coastal Commission. An in-lieu fee agreement option for contributing to a permitted or nearly-permitted mitigation project option will also be simultaneously pursued.

- If the mitigation program is successful, then impacts would be reduced to a level considered less than significant.

4.2.5 Marine Biological Resource Monitoring

- A construction and post-construction marine biological mitigation monitoring plan will be prepared that will include preconstruction, construction, and post-construction monitoring of the health of marine life at the project site, and a final determination of areas impacted by the project. These monitoring programs should be implemented to ensure that Newport Harbor water quality and marine resources are being protected through the implementation of the Marina Management Plan. This monitoring program should include a phased monitoring of the marina basin and the channel waters in front of the sand beach prior to, during, and following marina construction for a one-year period. If there are no observable, adverse impacts during the first year, then all monitoring will be deemed complete. If adverse impacts are observed, then mitigation measures will be re-evaluated and implemented. Monitoring will occur and cease once there are no observable impacts, up to a period of five years. If it is determined that Newport Harbor water quality or marine life have been degraded as a result of the operation of the marina, then adaptive management techniques should be implemented to protect the bay's water quality and marine resources.

- In the event of a construction vessel collision with a marine mammal, the City will immediately contact Mr. Joe Cordero, National Marine Fisheries Service Southwest Regional Office's Stranding Coordinator 562 980-4017) and will submit a report to the NMFS Southwest Regional Office.

5.0 ALTERNATIVES ANALYSIS

5.1 ALTERNATIVE 1. NO PROJECT ALTERNATIVE/NO DEVELOPMENT ALTERNATIVE

This alternative would maintain status-quo marine water quality and marine resources conditions. There would be no loss of marine resources or reduction in soft bottom habitat as a consequence of this alternative.

6.0 CUMULATIVE EFFECTS

The proposed project will incrementally increase the potential for water quality degradation in Newport Harbor. However, with the implementation of proposed mitigation measures, these cumulative impacts are anticipated to be less than significant.

The project will incrementally reduce the amount of open sand beach and shallow subtidal soft bottom habitat in Newport Harbor, reducing the value of Newport Harbor as a biological habitat for seabirds and shorebirds. It will increase shallow water habitat area for fishes and soft bottom benthic invertebrates. The net loss of 0.66 acre of sandy intertidal habitat is a potentially significant, but mitigable long-term impact. Mitigation for habitat losses, if successful, will result in a less than significant cumulative impact to marine resources.

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Appendix 1.
Pelagic and Groundfish Fishery Management Plan Species
Potentially Present in Newport Bay

Common Name	Scientific Name	Comment
Coastal Pelagics FMP		
Northern anchovy	*Engraulis mordax*	Upper Newport Bay Absent in Upper Newport Bay (Allen, 1976) 1 individual in Upper Newport Bay (MBC and SCCCWRP, 1980; Eighth most abundant species in Upper Bay (Horn and Allen, 1981); Seventh most abundant species in Upper Newport Bay (Allen, 1988); Not among 10 most dominant species in Upper Newport Bay (MBC 1997 in MEC 1997); Engraulid juveniles abundant (1,844) in purse seines in Upper Newport Bay (MEC 1997); Lower Newport Bay Present (13) in Lower Newport Bay (Allen, 1976)
Pacific sardine	*Sardinops sagax*	Rare (1) in Lower Newport Bay (Allen, 1976)
Pacific mackerel	*Scomber japonicus*	rare (1) in Lower Newport Bay (Allen, 1976)
Jack mackerel	*Trachurus symmetricus*	none reported
Pacific Groundfish FMP		
English sole	*Parophrys vetulus*	rare (1) in Upper Newport Bay (Allen, 1976) rare (1) in Lower Newport Bay (Allen, 1976)
Pacific sanddab	*Citharichthys sordidus*	none reported
Leopard shark	*Triakis semifasciata*	rare (1) in Upper Newport Bay (Allen, 1976)
Bocaccio	*Sebastes paucispinis*	none reported
California scorpion fish	*Scorpaena guttata*	rare (1) in Lower Newport Bay (Allen, 1976)
Olive rockfish Rockfish, unid)	*Sebastes serranoides* *Sebastes* sp.	rare (1) in Lower Newport Bay (Allen, 1976)
Cabezon	*Scorpaenichthys marmoratus*	none reported

Appendix D.3. Dredge Disposal Area Evaluations

MARINE BIOLOGICAL ASSESSMENT
HABITATS AND SPECIES IN THE VICINITY OF PROPOSED BEACH REPLENISHMENT
FOR THE CITY OF NEWPORT BEACH MARINA PARK PROJECT
NEWPORT BEACH, CALIFORNIA

Prepared for:
The City of Newport Beach Public Works Department
3300 Newport Boulevard, Newport Beach, CA 92658
Contact: Mark Reader, Project Manager

Prepared by:
Coastal Resources Management, Inc.
PMB 327, 3334 E. Coast Highway, Corona del Mar, CA 92625
Contact: Rick Ware, Principal/Senior Marine Biologist
(949) 412-9446

October 23rd, 2009

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1.0 INTRODUCTION

The City of Newport Beach is proposing to develop a public park for passive and active activities between 15th and 19th Street, in Newport Beach, California. The passive area will include an open lawn area and a water feature. The active areas will include a children's play area and a half-court basketball court. Sailing facilities to be developed at the site include a public short-term visiting vessel marina and a sailing center that will include rooms for educational classes as well as community events. A restaurant will be located on top of the Balboa/Sailing center and will include areas for marina rentals as well as room for sailing classes. The City of Newport Beach proposes to use sandy material excavated from the site as beach fill material along the Balboa Peninsula and in China Cove (Newport Bay). The sites proposed for beach replenishment, amount of material each site can accommodate, disposal method, and location of disposal (on beach or nearshore) are shown in Table 1 and illustrated in Figure 1-3. In addition to these sites, some fill will be required for the project (on-site), and approximately 3,000 cubic yards (cy) of contaminated material will be disposed at an upland disposal site which accepts contaminated material. The location of this site is unknown at this time. Dredged material meeting Environmental Protection Agency (EPA) and Regional Water Quality Control Board (RWQCB) criteria and the following criteria for beach replenishment may be deposited as beach nourishment in accordance with project plans: Material utilized for beach nourishment shall have a sand content that is either 1) greater than 80% sand; or 2) at least 75% sand and within 10% of the sand content of the receiver beach. Any material that meets these requirements for beach nourishment and consists of less than 80% sand shall only be placed upon submerged beach areas (i.e. below the water line) (Source: California Coastal Commission, 2006).

Table 1. Summary of Sand Disposal Options for the Marina Park Project In Newport Bay and along the Balboa Peninsula (Source: City of Newport Beach Public Works Department

Location	Amount of Material	Disposal Method	Area of Disposal
China Cove, Newport Bay	5,000 cubic yards (cy)	via Truck	Sand Beach 110 x 110 sq ft sand beach fill area
Marine Center, Newport Pier	Up to 10,000 cy	via Truck	Sand Beach
Site A Near-shore Disposal Site 40th St. to 52nd St. Balboa Peninsula	Up to 45,000 cy	via Barge	Nearshore 4,570 ft long length of nearshore habitat
Site B Near-shore Disposal Site 16th St. to 6th St. Balboa Peninsula	Up to 45,000 cy	via Barge	Nearshore (2,450 ft long length of nearshore habitat)

In response to National Oceanographic and Atmospheric Administration (NOAA) comments on the draft Environmental Impact Report for the Marine Park Project EIR, (No. 2008051096) that requested more information on the presence of sensitive habitats potentially within sand disposal areas (Comment A6-4), this report identifies sensitive resources and assesses the potential

Figure 1. China Cove Sand Disposal Site

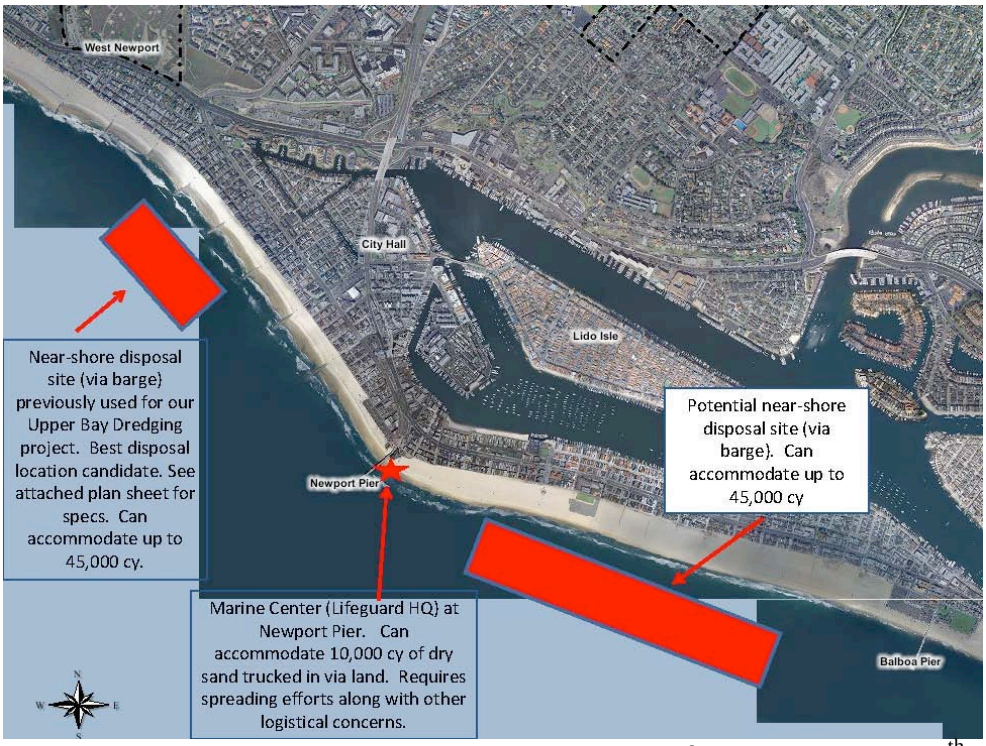


Figure 2. Balboa Peninsula Sand Disposal Sites. Upper left is the Site A, 40th-to 52nd St. nearshore disposal site; middle (Newport Pier) is the Marine Center Site; and the lower right site is the Site B, 16th to 6th St. nearshore disposal site.

effects of sand disposal on biological habitats and resources groups, including sensitive habitats and sensitive species. Where applicable, Best Management and mitigation measures are provided to lessen potential adverse environmental impacts on marine resources.

2.0 EXISTING CONDITIONS

Existing biological conditions discussed in this study are based upon: (1) site visits to each of the project sites by Rick Ware, Senior Marine Biologist of Coastal Resources Management, Inc. (CRM) and Robb Hamilton, President/Biologist of Hamilton Biological, Inc. on September 30th, 2009 and October 12th; (2) applicable scientific data bases, (3) literature and reports; and (4) communications with local wildlife experts. The assessment of project impacts on birds (Hamilton Biological Inc.) is presented in Appendix 1.

2.1 HABITAT TYPES AND GENERAL BIOLOGICAL CHARACTERISTICS IN THE PROJECT AREA

2.1.1 China Cove is located near the entrance to Newport Harbor, along the Corona del Mar shoreline (Figure 1). The area is a residential community that fronts a sandy beach and the entrance channel to Newport Harbor (Figures 2 and 3). A cement bulkhead is located along its backshore perimeter. The two sand beaches in the cove consist of fine-grained, imported sand, and these beaches are susceptible to sand loss. The backshore vegetation at the site consists of only terrestrial plants- Highway Iceplant (*Carpobrotus edulis*) and Washington Fan Palm (*Washingtonia filifera*), both non-native invasive species.

The foreshore is a wide, low-tide terrace that grades into a fine-grained shallow subtidal bayfloor colonized by eelgrass (*Zostera marina*). See Section 2.4.1 for a discussion of eelgrass. At the south end of the cove, the shoreline is a combination of bulkhead and rocky intertidal that is colonized by green, red, and brown algae, and invertebrates such as mussels, anemones, barnacles, and limpets. The marine biological community living on the low-intertidal rocky substrate in Carnation Cove (immediately north of China Cove) supports high cover of the scaly worm snail (*Serpulorbis squamigerus*), and secondary, lower biological cover of barnacles (*Balanus* spp.), mussels (*Mytilus galloprovincialis*), green algae (*Enteromorpha*/*Ulva* complex), and brown algae (*Sargassum muticum*, and *Codium fragile* (Coastal Resources Management, Inc. 2008). Invertebrates observed on the shallow subtidal rock outside the cove included Kellet's whelk (*Kelletia kelletii*), ochre sea star (*Pisaster ochraceus*), warty sea cucumber (*Parastichopus parvimensis*), and lobster (*Panulirus interruptus*). These species would be expected occur in the rocky intertidal facing the Entrance Channel around the perimeter of China Cove as well.

The rocky intertidal transitions into the sandy subtidal bayfloor of the entrance channel. One small rocky intertidal outcrop is present in the middle of China Cove, that is located 175 feet away from the proposed beach replenishment activity . Bird life in the cove is variable, and typical of beach sites in Newport Bay. A Western Gull and a Spotted Sandpiper (*Actitis macularia*) were observed at this site during the sensitive bird species reconnaissance survey, and it is likely that other common bird species such as the willet and marbled godwit forage or roost here on occasion. Other birds observed at the site have included great blue heron and great egret, both on the docks of the Kerckhoff Marine Laboratory (R. Ware, pers. obs). The site is

too small and close to residences to provide habitat for any bird species that is not highly adapted to conspicuous human presence.

Figure 3. China Cove Beach Disposal Site

Figure 4. China Cove Beach.
A rocky outcrop is located in the center of the cove 175 feet north of the disposal site.

2.1.2 Balboa Peninsula Sandy Beaches. Along the ocean side of the Balboa Peninsula, moderate-to-high energy sand beaches extend between the Santa Ana River Mouth and the entrance to Newport Harbor. The section of Newport's shoreline between the Santa Ana River Mouth and Newport Pier is also interspersed with rock groins that serve to stabilize the sandy shoreline. Photographs of shoreline at the three Peninsula sand replenishment sites are shown in Figures 5-6 (Site A, 40th to 52nd Street; Figures 7-8 (Site B, Site 6th Street to 16th Street); and Figures 9-10 (Marine Center, Newport Pier). Based on the results of the Coast of California Storm and Tidal Wave Study grain size distribution analysis (USACOE, 2002), West Newport has coarse sand between 0.4 to 0.5 millimeters in diameter, and Balboa Peninsula has coarser sand of between 0.5 and 0.6 mm in diameter (Figure 11). Beach slopes in West Newport are relatively steep compared to other beaches, but the Peninsula has the steepest beaches due to the coarsest sand. Slopes at West Newport are 10:1 (horizontal:vertical) while those at the Peninsula are up to 5:1 in some areas. Typical beach slopes are between 10:1 and 20:1. Erosion between the beach groins typically occurs on the downcoast side of each groin, creating beach scarps and loss of beach sand (Figure 6). Offshore, sediments tend to be fine-grained silty-sand to silts at depths between -6 to -30 ft. There are no nearshore reefs, although rock groins provide substrate for both intertidal and subtidal species associated with reefs and hardscape.

The backshore of the sandy beaches east of the Newport Pier support some dune vegetation on unstablized dunes, usually immediately adjacent to open beach (Coastal Resources Management, and Chambers Group, Inc. 2003). Southern coastal foredunes extends along the open sandy beaches from 10th Street to the end of the Balboa Peninsula. The soil is nutrient-poor and the community is exposed to continuous wind. Dominant plant species include red sand-verbena (*Abronia maritima*), sea rocket (*Cakile maritima*), beach primrose (*Camissonia cheiranthifolia*), sea-fig (*Carpobrotus edulis*), iceplant (*Mesembryanthemum* sp.), beach morning glory (*Calystegia soldanella*), sand mat (*Cardionema ramosissima*), and beach bur (*Ambrosia chamissonis*).

Sandy beaches support relatively few intertidal organisms compared to rocky intertidal areas due to generally intolerant physical conditions such as seasonal losses of beach sands and extreme variations in temperatures. Beach hoppers (amphipods), sand crabs (*Emerita analoga*), and a limited diversity of polychaete worms are representative intertidal beach organisms. In addition, the California grunion (*Leuresthes tenuis*) is known to spawn along Newport Beach between March and September. See discussion of California grunion in Section 2.4.4.

The proposed sand disposal site at the Marine Center is located between the base of Newport Pier and the southern terminus of 19th Street (Figure 9-10). The site consists of open, sandy beach that Just north of the pier is a fish cleaning area that routinely attracts large numbers of gulls (Larus spp.) and some Brown Pelicans (*Pelecanus occidentalis*), as well as Royal Terns (*Thalasseus maximus*) and Elegant Terns (*Thalasseus elegans)* (Hamilton Biological, Inc, 2009). Various common shorebird species forage in the intertidal zone at this location, including the Willet (*Catoptrophorus semipalmatus*), Marbled Godwit (*Limosa fedoa*), and Sanderling (*Calidris alba*). Otherwise, bird use of this area will generally be limited to such highly adaptable species as the Rock Pigeon (*Columba livia*), American Crow (*Corvus brachyrhynchos*), and European Starling (*Sturnus vulgaris*).

Figure 5. Site A, Nearshore Disposal Site Shoreline. 44th Street to 52nd Street

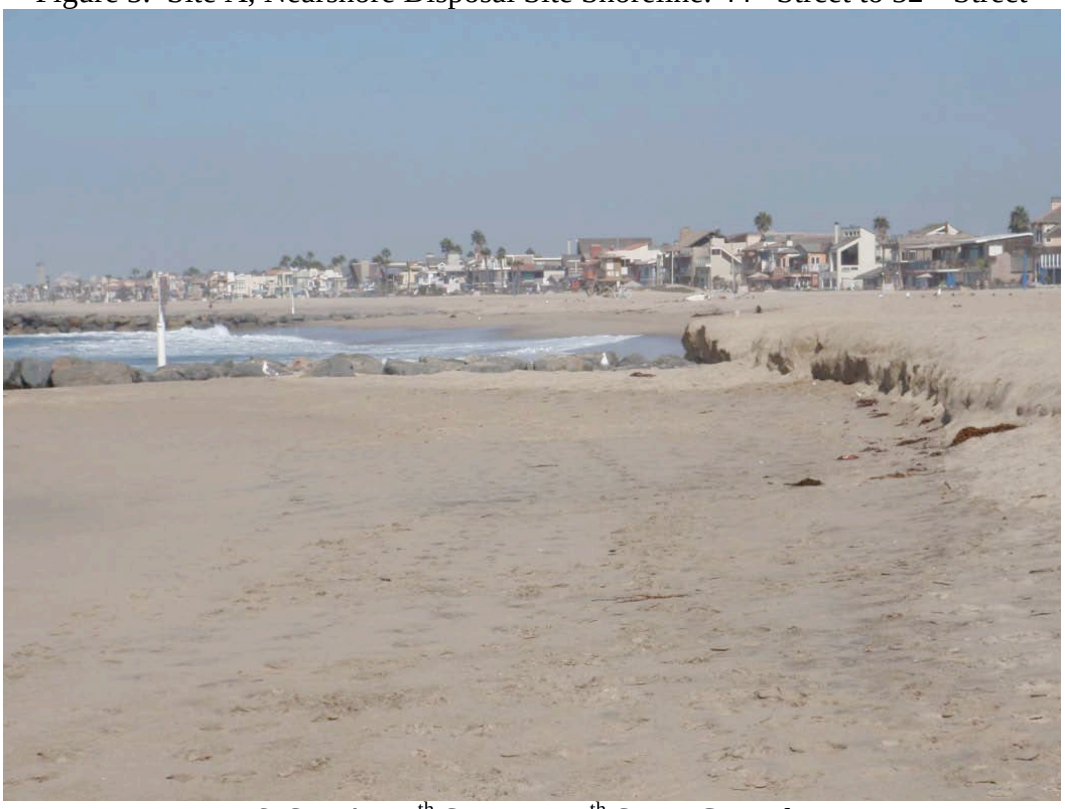


Figure 6. Site A- 44th Street to 45th Street Coastal Erosion

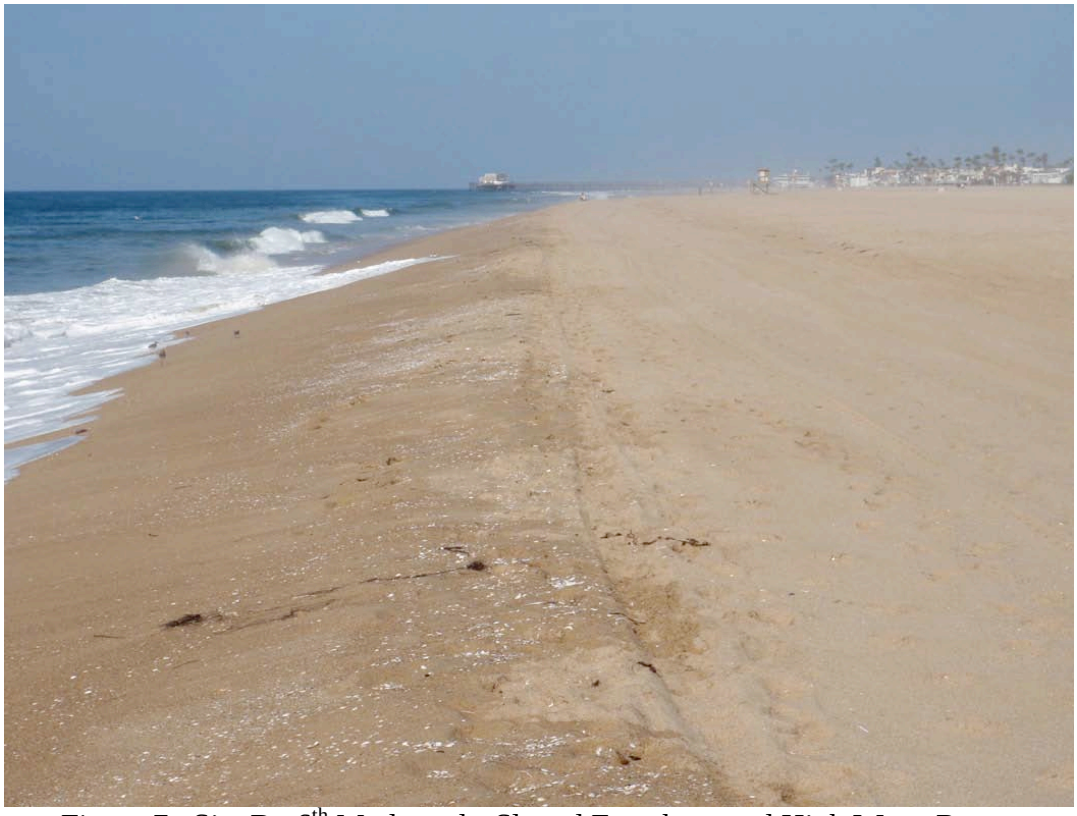


Figure 7. Site B, 6th Moderately-Sloped Foreshore and High Wave Run-up

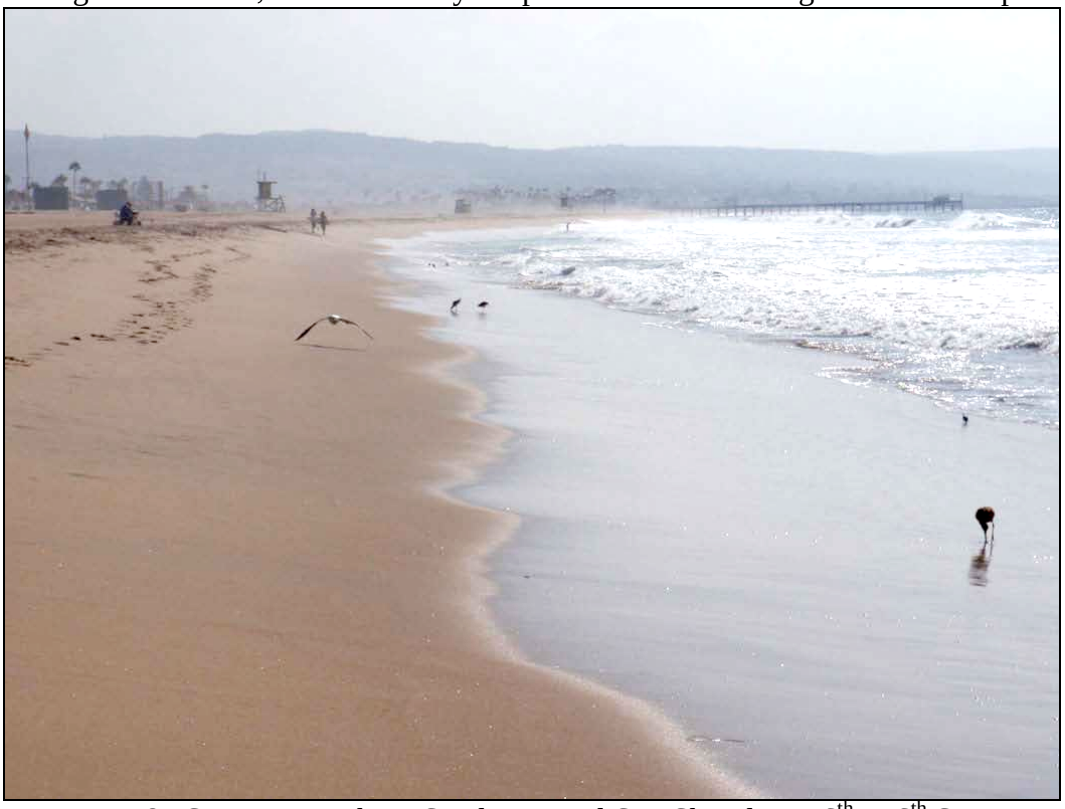
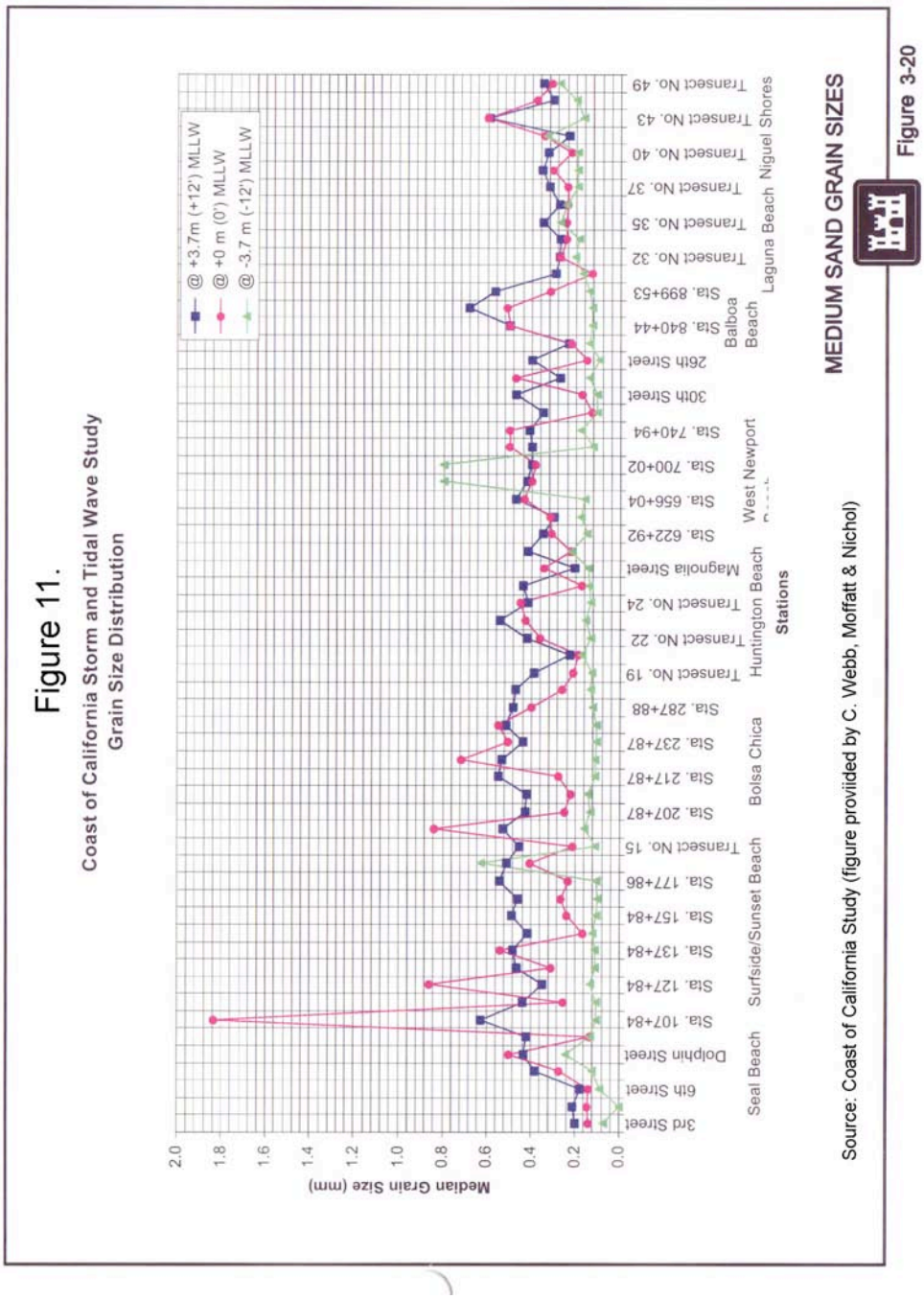


Figure 8. Site B Near-shore Sand Disposal Site Shoreline-16th to 6th Street

Figure 9. Marine Center Project Area at Newport Pier

Figure 10. Marine Center Sand Disposal Area, Facing West



Rock groins (West Newport, Figures 5-6) provide a stable biological habitat for many coastal species. while the surfaces of these structures within the littoral (tide) zone provide attachment area for intertidal and subtidal algae and invertebrates, cryptic habitat for resident fishes, and foraging areas for fish that prey on small invertebrates and graze on algae that attach to the structure. Sand movement will alternately expose and cover lower areas at the base of these rocks, creating stressful conditions for invertebrates and plants resulting in highly variable abundances over the course of a season and between years. Common invertebrates observed on

the rock groins at 44th Street during the site reconnaissance survey on 30 September 2009 included California mussels (*Mytilus californianus*), goose-neck barnacles (*Pollicipes polymerus*), anemones (*Anthopleura sola*), and the barnacles *Chthamalus fissus/dalli* and *Balanus glandula*. The groins adjacent to the westerly Site A provide foraging and roosting habitat for birds of the rocky shore, including the Black Oystercatcher (*Haematopus bachmani*), Black Turnstone (*Arenaria melanocephala*), and Surfbird (*Aphriza virgata) and* perching sites for birds such as pelicans (Pelecanus occidentalis occidentalis), cormorants (Phalocorax spp.), and sea gulls (*Larus* spp.).

2.1.3 Balboa Peninsula Near-Shore Waters. Sand beaches grade into subtidal fine sands and silts that become progressively finer with increasing depth and decreasing wave energy outside the wave zone. The distribution of these sediments is affected by several factors, including input of sediments from the Santa Ana River, normal longshore current patterns, the obstruction and alternation of longshore current patterns by the Newport Beach groin fields, and the Newport Harbor jetty that modifies patterns of water and sediment movement. Within the project area, sandy-to -silty sediments are present where depths vary from -2 ft MLLW immediately to depths of -20 and -30 ft approximately 1,000 ft offshore.

The median grain size at depths of -12 ft (3.7 m) along West Newport between the Santa Ana River and 40th St were coarser than the Balboa beaches east of the pier where the median grain size at this depth was generally less than 0.2 mm. This shift in grain sizes may be in part, due to the effects of the Newport Submarine Canyon. Outside of the -12 ft isobath, sediments tend to become siltier, with increasing depth. These sediments support a benthic community of invertebrates such as sea pansies (*Renilla kolkerii*), sea pens (*Stylatula elongata*), polychaete worms (*Diopatra ornata/D. splendissima*), crustaceans (amphipods, isopods, cumaceans and ostracods), snails (*Olivella biplicata*), ophiuroid brittle stars (*Amphiodia* sp.), sand dollars (*Dendraster excentricus*), sea stars (*Pisaster brevispinus*), and sand stars (*Astropecten armatus*). Various gulls are also often seen roosting along the beaches and in the water just past the breakers.

Fishes of the sandy surf zone habitat include topsmelt (*Atherinops affinis*), shiner surfperch (*Cymatogaster aggregata*), walleye surfperch (*Hyperprosopon argenteum*), barred surfperch (*Amphisticus argenteus*), dwarf surfperch (*Micrometrus minimus*), California halibut (*Paralichthys californicus*), barred sand bass (*Paralabrax nebulifer*), and round sting ray (*Urolophus halleri*). Common open coastal water column and/or demersal fishes associated with sand bottom habitats offshore of Newport Beach include white croaker, halibut, barred sand bass, sand dabs (*Citharichthys stigmaeus*), horny head turbot (*Pleuronichthys verticalis*), bat ray (*Myliobatis californica*), staghorn sculpin (*Leptocottus armatus*), and lizard fish (*Synodus lucioceps*). The near-shore waters in the vicinity of Near-shore Disposal Sites A and B provide potential foraging habitat for limited numbers of such common species as the Surf Scoter (*Melanitta perspicillata*), Western Grebe (*Aechmophorus occidentalis*), and Double-crested Cormorant (*Phalacrocorax auritus*).

2.2 NON-PROTECTED SPECIAL AND UNIQUE HABITATS

2.3.1 **Essential Fish Habitat Habitats of Particular Concern (HAPC).** The project area does not fall within any areas of reef, kelp bed, estuarine, or eelgrass habitat, which are considered habitat areas of particular concern (HAPC) for various federally managed fish species within the Pacific Groundfish FMP, (i.e., rockfishes). The nearest HAPC are Newport Bay and the subtidal and intertidal reefs south of the Newport Harbor Channel Entrance. HAPC are described in the regulations as subsets of Essential Fish Habitat that are rare, particularly susceptible to human induced degradation, especially ecologically important, or located in an environmentally stressed area. Designated HAPC are not afforded any additional regulatory protection under the Magnuson-Stevens Fishery Conservation and Management Act (1997). However, federally permitted projects with potential adverse impacts to HAPC will be more carefully scrutinized during the consultation process (National Marine Fisheries Service, 2007).

2.3.2 Newport Beach Submarine Canyon. Although the Newport Submarine Canyon is not a protected habitat, it is a unique coastal feature that begins immediately seaward of the Newport Pier at a depth of 8 meters (25 ft) Bottom depths rapidly increase to nearly 30 meters (100 ft) within 400 meters (1,200 ft) from shore and 100 meters (300 ft) deep within 1,300 meters (3,900 ft) from shore (Coastal Resources Management, Inc. 2002). This geological feature is believed to have been formed by the ancestral Santa Ana River, and it is the exit pathway for southward-moving sands transported through littoral drift currents at the end of the San Pedro Littoral Cell. In an effort to reduce the sand loss, the U.S. Army Corps of Engineers (Corps) constructed groins along West Newport to hold the sand, which has been partially successful. Biologically, the submarine canyon is unique because it acts as a pathway for cold, nutrient-rich waters that upwell from deeper offshore waters to the shallower nearshore shelf. Additionally, the Canyon acts as a pathway through which deeper water species of fish, squid, shark, and jellyfish) sometimes can be found close to shore. The Canyon is also an important fishing zone for the Newport Dory Fleet.

2.3 MARINE PROTECTED AREAS

2.2.1 State and City Protected Areas. China Cove and the Balboa Peninsula are not located within the boundaries of City, State, or Federal marine protected areas, nor are identified within any of three proposals that are being evaluated to update the limits of MPAs in the South Coast Study Region (http://www.dfg.ca.gov/mlpa/scrsg-dprops-r3.asp). The nearest local and state-marine protected area is the City of Newport Beach Marine Life Refuge (Area of Special Biological Significant #32, Robert C. Badham ASBS), located in Corona del Mar east of the entrance jetty. This marine refuge is located 0.5 mi from China Cove, 3.5 miles from 6th Street to 16th Street nearshore sand disposal site, and 4.3 miles from the 44th to 52nd Street nearshore sand disposal site.

The City of Newport Beach Local Coastal Plan (City of Newport Beach, 2004) identifies giant kelp (*Macrocystis pyrifera*) beds along the west jetty in the Newport Harbor Entrance Channel as *Environmental Study Area Number 13*, because kelp forests afford protection and cover for many marine invertebrates and fishes, they are a persistent feature within the Entrance Channel, and because there is a potential for kelp to be affected by future dredging activity in the Entrance Channel.

The head of the Canyon is located at the tip of Newport Pier but is not within the proposed near-shore sand disposal sites. It is located 0.9 mi southeast of Site A near-shore sand disposal area and 0.4 mi northwest of the Site B near-shore sand disposal site.

2.4 SENSITIVE SPECIES

Sensitive species that may be present within the project area are listed in Table 2 and discussed below.

2.4.1. Eelgrass (*Zostera marina*)

Although not identified as a City designated Environmental Study Area, eelgrass habitat extends between the Newport Harbor Entrance Channel and Upper Newport Bay, and back through Mariner's Mile (Figure 12, Coastal Resources Management, Inc. 2005, 2008). Most eelgrass is found between the harbor entrance channel and Linda Isle. Eelgrass occurs in the intertidal and subtidal habitats of China Cove, at depths between 0.0 and -12 feet (ft) Mean Lower Low Water (MLLW). It lies approximately 100 ft from the edge of the proposed sand disposal site. While it occurs in the Harbor Entrance Channel, it has not been reported to occur in the nearshore shallow subtidal habitat offshore of the Balboa Peninsula in the vicinity of the either Site A or Site B near-shore sand disposal sites.

2.4.2 Surfgrass (*Phyllospadix torreyi*)

Surfgrass is a sensitive marine resource that occurs in rocky shoreline and rocky subtidal habitats at depths to approximately 20 feet. Its sensitivity is related to its use by invertebrates and fishes as nursery habitat and its susceptibility to long-term damage because it is a very slow growing species. Revegetation occurs very slowly through initial seeding and eventually the spreading of roots and rhizomes over surfaces of rocks. Surfgrass is considered to be a Habitat of Particular Concern by the National Marine Fisheries Service, and juvenile olive rockfish (*Sebastes serranoides*) which are

Figure 12. Newport Bay Eelgrass Distribution. Coastal Resources Management, Inc. (2009)

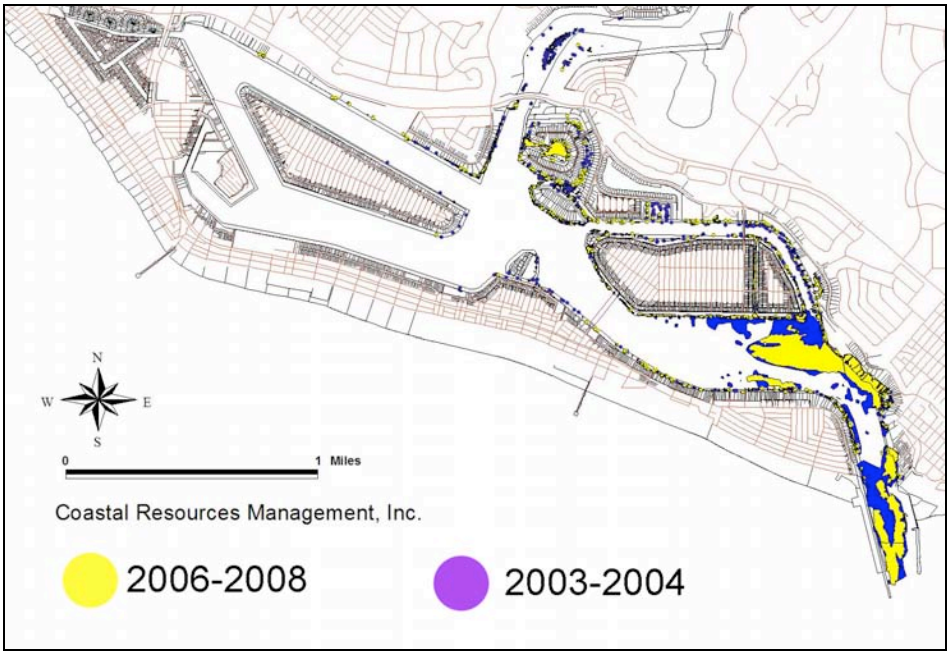


Figure 13. Newport Bay Eelgrass Distribution.
Source: Coastal Resources Management, Inc. (2009).

Table 2. Special Status Species

Scientific Name	Common Name	Federal Status	CDFG Status	Habitat	Potential to Occur
Plants					
Macrocystis pyrifera	giant kelp	Habitat Area of Particular Concern (HAPC) for Fisheries Management Plan (FMP) Species under the Magnuson-Stevens Fishery Conservation and Management Act	-	Nearshore rocky subtidal habitat	None; not present in the project areas.
Phyllospadix torreyi	surfgrass	HAPC for FMP Species	–	Nearshore rocky intertidal/rocky subtidal	Low potential to be present on the groins located along West Newport
Zostera marina	eelgrass	Habitat Area of Particular Concern (HAPC) for Fisheries Management Plan (FMP) Species under the Magnuson-Stevens Fishery Conservation and Management Act	–	Bays, harbors, shallow nearshore water sediments	Present in China Cove; absent along the Balboa Peninsula
Invertebrates					
Haliotis spp.	Black abalone	FE		Rocky intertidal and subtidal reefs	No potential
Tivela stultorum	Pismo clam	no status	no status, although it is considered a recreational fishery resource	Low intertidal sandy beaches and nearshore sandy sediments at depths to about 80 feet; common in shallow water surf-zone depths	Potential unknown, due to limited knowledge of the Pismo clam population along the Newport shoreline.
Fishes					
Eucyclogobius newberryi	Tidewater goby	FE	–	Shallow marine waters, lower reaches of streams	No potential, extirpated from Orange County
Leuresthes tenuis	California grunion	–	–	Spawns on local open coastal beaches	High potential to be present in the vicinity of the Balboa Peninsula
Hypsypops rubicundus	California garibaldi	Protected under commercial and sport fish regulations	California State Marine Fish , Assembly Bill AB77, 1995	Subtidal rocky reef habitat; resident and territorial species in shallow subtidal rocky habitats	None in West Newport Bay; does occur near the harbor entrance channel in rocky subtidal environment
Paralichthys californicus	California halibut	–	–	Shallow coastal waters, open ocean	High potential

Scientific Name	Common Name	USFWS Status or NMFS Status	CDFG Status	Habitat	Potential to Occur
Reptiles					
Chelonia mydas	Green turtle	FE	–	Nearshore and open ocean waters	Rare visitor but unlikely to occur in the waters of West Newport Bay
Eretmochelys imbricata	Hawksbill sea turtle	FE	–	Nearshore and open ocean waters	Rare visitor but unlikely to occur in the waters of West Newport Bay
Birds					
Pelecanus occidentalis californicus	California Brown Pelican	FE (delisting proposed)	CE	Does not nest in local area; non-breeders roost in estuaries and on beaches and breakwaters, and forage in bays and near-shore waters.	Known to forage and rests in the project area.
Rynchops niger	Black Skimmer	—	SSC	Nests on islands with expanses of bare ground; in winter, commonly roosts on beaches well above the tide line or on mud flats in estuaries.	Nests at Upper Newport Bay; likely to forage in project area. Skimmers forage on small fish and possibly crustaceans in ponds, estuaries, bays, and in the nearshore waters, usually within a few miles of nesting sites.
Sternula antillarum browni	California Least Tern	FE	CE	Nests on sparsely vegetated flat substrates, forages in nearby waters.	Nests at Upper Newport Bay and at the mouth of the Santa Ana River; moderate potential to forage occasionally in project area. Least Terns forage on small fish in ponds, estuaries, bays, and in the nearshore waters, usually within 5 miles of nesting sites.
Charadrius alexandrinus nivosus	Western Snowy Plover	FT	SSC	Nests on sandy beaches and shores. Non-breeders forage and roost on sandy beaches and shores, typically using the same areas year after year.	No potential for breeding in the project area; low potential for occurrence by non-breeders. Nearest nesting location is at the mouth of the Santa Ana River. Repeated surveys by local Snowy Plover monitors have identified only one regular winter roost on the Newport Peninsula, 2.0 miles southeast of Newport Pier, on the beach between E and F streets, where 62 plovers were present on 5 October 2009 (Peter Knapp pers.

					comm.).
Scientific Name	**Common Name**	**USFWS Status or NMFS Status**	**CDFG Status**	**Habitat**	**Potential to Occur**
Mammals					
Zalophus californianus	California sea lion	MMA		Nearshore and open ocean waters, occasionally enters bays/harbors	Moderate-to-high potential for individuals to be present in the vicinity of China Cove and within near-shore Disposal Sites A and B.
Phoca vitulina	Harbor seal	MMA		Nearshore and open ocean, occasionally enters bays/harbors	Low-to-moderate potential for individuals to be present in the Entrance Channel and along the Balboa Peninsula.
Tursiops truncatus	Bottlenose dolphin	MMA		Nearshore and open ocean waters; may enter bays/harbors	Moderate potential for individuals to be present along the Balboa Peninsula; low potential to be present in Newport Harbor
Eschrichtius robustus	California gray whale	MMA		Nearshore and open ocean waters	Rare visitor to Newport Harbor; common offshore of the Balboa Peninsula between December and April. Potential higher for individuals to be closer to shore during northbound migration between March and April.

FE – Federal Endangered; FT – Federal Threatened; MMA – Protected under Marine Mammal Act
California Department of Fish and Game
CE – California Endangered
SSC – Species of Special Concern
HAPC are subsets of Essential Fish Habitat (EFH) which are rare, particularly susceptible to human induced degradation, especially ecologically important, or located in an environmentally stressed area. Designated HAPC are not afforded any additional regulatory protection under the Magnuson Stevens Fishery Conservation and Management Act (MSA); however, federally permitted projects with potential adverse impacts to HAPC will be more carefully scrutinized during the consultation process (NMFS 2008a)

Fisheries Management Plan groundfish species, utilize surfgrass beds as nursery habitat. Surfgrass is also an extremely important nursery habitat for juvenile lobsters.

Surfgrass may be present at low intertidal and shallow subtidal depths on the individual groins in Disposal Area A. However, this species is not present within the perimeter of proposed near-shore sand disposal activities.

Giant Kelp. Giant kelp, as discussed in section 3.3.1 grows in the Newport Harbor Entrance Channel, but is not present at either of the near-shore sand disposal sites off of the Balboa Peninsula.

2.4.3. Invertebrates. In 1998, the National Oceanographic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS) added black abalone (*Haliotis cracherodii*) to the candidate species list for possible listing under the federal ESA, and on January 14th, 2009, NMFS listed black abalone as an endangered species (Federal Register / Vol. 74, No. 9 / Wednesday, January 14th, 2009 /Rules and Regulations). Black abalones usually inhabit surf-battered rocks and crevices from the intertidal zone to shallow subtidal zone down to 20 ft (6 m). It is a long-lived species, attaining an age of 25 years or more. Now a rare species, the black abalone was abundant in California until the mid-1980's. It once occurred in such high concentrations that individuals were observed stacked on top of one another. This species is not present within the sand disposal project areas, and unlikely to be present at the mouth of Newport Harbor. east of Disposal Site B.

The Pismo clam (*Tivela stultorum*) is a thick, heavy-shelled clam that is sought after for its flavor by recreational clam diggers. It usually lives in the intertidal zone on flat beaches of the open coast, but they have been found out to depths of 80 feet and are sometimes encountered in the entrance channels to sloughs, bays and estuaries (California Department of Fish and Game, 2001). Their normal depth in the sand is 2 to 6 inches, but can be found up to 12 inches deep (CDFG 2001). Burrowing is accomplished by moving the foot rapidly to loosen the surrounding sand. Jets of ejected water then help to further loosen the sand along the sides of the shell. The weight of the clam and the pull of the foot together drag the clam down through the sand. It has been periodically abundant in Orange County between Seal Beach and Newport Beach (Knaggs, 1977; California Department of Fish and Game, 2001). Although no recent surveys have been conducted in Orange County, Pismo clam surveys conducted at Coronado Beach between 2000-2005 indicated that the Pismo clam population was relatively stable and that some recruitment was taking place. Recent reports from clam diggers, as well as divers indicate that significant numbers of Pismo clams continue to be harvested from some of the beaches in southern California. In addition, Pismo clam populations at the Channel Islands appear to be stable, as shown by surveys conducted by the National Park Service (California Department of Fish and Game, 2006). Based upon this information, it can be assumed that Pismo clams may be present in the intertidal and shallow subtidal habitat within the project area. However, their abundance within the area is not known.

2.4.4 Fishes

Tidewater Goby. The tidewater goby (*Eucyclogobius newberryi*) has been expatriated from Orange County Streams. It is currently found in shallow marine areas and lower reaches of streams between San Diego northward to Humboldt County waters where the salinity is less than 10 parts per thousand. The population of the tidewater goby is depleted due to lowering or elimination of flows in the lower reaches of coastal streams, pollution, and the filling in, channelization, or physical alterations of their habitats. The population disappeared from about 74 percent of the coastal lagoons from Morro Bay southward to San Diego (U.S. Fish and Wildlife, 1994). This species will not occur within the project areas.

California Grunion *(Leuresthes tenuis).* The California grunion (*Leuresthes tenuis*) is a fish that uses the high intertidal sandy beach habitat of many southern California beaches as spawning habitat (Walker, 1952), including Newport Beach (CRM and Chambers Group, 2002, Moffatt & Nichol 2009). The grunion is a member of the silversides family, Atherinidae, along with the jacksmelt and topsmelt. They normally occur from Point Conception, California, to Point Abreojos, Baja California. Occasionally, they are found farther north to Monterey Bay, California and south to San Juanico Bay, Baja California. They inhabit the nearshore waters from the surf to a depth of 60 feet. The grunion is a non-migratory species (http://www.dfg.ca.gov/mrd/gruschd.html). Grunion use the energy of waves to strand themselves onto sandy beaches generally over a 3-4 night period following the highest semi lunar tides. Typically, grunion "runs" last about 1 to 2 hours (Walker, 1952). Female dig themselves tail-first into wet sand. The males then curl around the females and deposit milt. Normally, the eggs develop above the water line buried in moist sands and are triggered to hatch in nine days at the high tide of the next new or full moon by waves that reach high enough on shore to wash out the sand and carry the eggs into the ocean (Walker, 1952; Middaugh et al., 1983 in Darken et al., 1998). If the eggs are washed out to sea during the next high tides, they hatch rapidly into free-swimming larvae (Walker, 1952). If the waves do not reach the eggs, as happens frequently along the southern California coast, the eggs are able to remain viable for at least two more weeks (Walker, 1952) and up to 35 days (Darken et al., 1998). This period encompasses the next two highest semi lunar tides. However, hatching success decreases over time (Darken et al., 1998).

Spawning occurs from March through August, and occasionally in February and September. Peak spawning period is between late March and early June. After July, spawning is erratic, and the number of fish observed in a grunion run greatly decreases. (Walker, 1952).

The California grunion is not a formally listed federal-or-state rare, threatened, or endangered species, but grunion spawning habitat (sandy beaches) is considered "sensitive" because of the overlap between beach spawning activity and shoreline management activities such as (1) the removal of debris and grooming beaches by mechanical means that rake, remove, or crush eggs (2) beach erosion; 3) harbor construction; and (4) pollution (Martin, 2002, http://www.dfg.ca.gov/mrd/gruschd.html), as well as beach nourishment activities.

Grunion have a low potential to be present in China Cove. Grunion do however, spawn frequently along the Balboa Peninsula/West Newport beach shoreline. Historically, "grunion "runs" have occurred on west-facing beaches west of Newport Pier, where the beach slopes tend

to be more gradual rather south facing beaches downcoast of Newport Pier (Coastal Resources Management, 2003). Grunion run activity has also occurred on Corona del Mar State Beach and Rocky Point (Pirate's Cove) Beach, in the Harbor Entrance mouth (Jim Turner, Newport Beach Marine Department, Aug 7th 2002). Recent documented runs occurred during the 2009 grunion season (Karen Martin, PhD, Pepperdine University pers. com with R. Ware, 15 October 2009). In the early part of the season, grunion runs were observed along West Newport (57th St and the Santa Ana River Mouth), 36th St to 32nd St, and 30th St to 28th St (Tonia McMahon, Moffatt & Nichol, pers.com May 29th, 2009).

On the basis of the 2009 grunion run data, there is a moderate-to-high potential for grunion to be present between March and August in the near-shore habitat as well as on the beaches during spawning events.

California halibut (*Paralichthys californicus*). The California halibut does not have a formal special species status, but it is considered a sensitive species by resource agencies because of its commercial value and a continued region-wide reduction of its nursery habitat in bays and wetlands. California halibut spawn at sea and the larval stages are planktonic. . After spending nearly nine months in Newport Bay, juveniles will move out into the open coastal environment. This species has a moderate-to-high potential to occur in the shallow waters of the project area because of the nature of the sand shoreline and the relatively wide shelf of sandy silt sediments.

Garibaldi (*Hypsypops rubicundus*). The garibaldi is the largest of the damselfish family (Pomacentridae); adults, orange in color, typically reach 14 inches in length. It is found in shallow waters off the Southern California coast and Mexico (California Department of Fish and Game, 2001. Males build the nests, the female enters several of them and then makes her decision. The garibaldi is one of the few fish to use the same nesting site every year. In 1995 the California Legislature designated the Garibaldi as the Official State Marine Fish and banned any further commercial take. Garibaldi populations have rebounded from the local effects of commercial take and are in good condition throughout their range in southern California. Sports fishing take of this species is also prohibited (http://www.dfg.ca.gov/marine/pdfs/oceanfish2008.pdf).

Garibaldi occur in the Newport Harbor Entrance Channel and nearshore reefs (Coastal Resources Management, 2002, 2008) and may utilize the rock groins in the project area. However, their potential to be present in the project area is low.

2.4.5 Marine Reptiles

Marine reptiles do not utilize the local marine waters as a permanent breeding or foraging habitat. However, the green turtle (*Chelonia mydas*) and hawksbill (*Eretmochelys imbricata*), will occasionally occur in the nearshore environment offshore Orange County. Their occurrence in the vicinity of China Cove within Newport Harbor, and along the coastline in the vicinity of the near-shore sand disposal areas is expected to be rare.

2.4.6 Birds

Sensitive Bird Species Potentially in the Project Area. Table 2 lists each sensitive bird species known to occur on the project site or adjacent areas, or that could potentially occur there. Species accounts following the table discuss the range and conservation status of all taxa included in Table 2. Additional sensitive wildlife species could conceivably occur on the project site, but such occurrences would be exceptional or limited to the passage of migrants.

California Brown Pelican (*Pelecanus occidentalis californicus*)

The California brown pelican breeds from the Channel Islands south along Pacific coast of Mexico as far south as Nayarit; also breeds at the Salton Sea. Non-breeders range from southern British Columbia south along Pacific coast to Colima, Mexico. The federal government and State of California listed this large seabird as endangered due to sharp population declines resulting from organochlorine pesticide pollution during the 1960s and 1970s. The U.S. Fish and Wildlife Service proposed delisting the brown pelican in 2008, and if this decision is carried forward the species' populations will be monitored for a decade, from 2010 to 2020, under a post-delisting monitoring plan. The species continues to be listed as endangered by the State.

California brown pelicans do not breed in Orange County, but non-breeders occur commonly in estuaries and on beaches and breakwaters; they typically forage in bays and near-shore waters. Brown Pelicans occur regularly in lower Newport Bay, on the beach at Newport Pier, and in the near-shore waters off Balboa Peninsula, including areas that would be affected by the proposed project.

Black Skimmer (*Rynchops niger*)

The black skimmer is a California Species of Special Concern, an administrative designation given to vertebrate species that appear to be vulnerable to extinction because of declining populations, limited ranges, and/or continuing threats. Some species may be just starting to decline, while others may have already reached the point where they meet the criteria for listing as a threatened or endangered species. The species is widespread along the coasts of the Americas, and in the West it breeds primarily in coastal southern California and the Salton Sea. The species also breeds very locally in Mexico, from Baja California south to Colima. The winter range extends south to El Salvador and Nicaragua. The greatest threat to the long-term viability of the breeding population is thought to be the apparent shortage of suitable open nesting habitat and its continued loss as a result of erosion or vegetation growth on small islets.

This species is a year-round resident on the coast of Orange County, breeding on islands at Upper Newport Bay, Bolsa Chica, and the Seal Beach National Wildlife Refuge. The species forages mainly at dawn, dusk, and at night, and foraging skimmers could potentially forage in the near-shore waters proposed as sand disposal sites, but would be unlikely to do so regularly or intensively.

California Least Tern (*Sternula antillarum browni*)

This small tern, listed as endangered by the U.S. Fish and Wildlife Service and the State of California, breeds on sandy beaches and other barren habitats along the Pacific coast from Monterey County south to southern Baja California. The birds prey upon small fish in ponds, bays, and near-shore waters, typically within five miles of their nesting colonies. California least

terns typically are present in southern California from mid-April through August; they winter on the Pacific coast of southern Mexico. Declines in populations of this species have been related to loss of suitable nesting habitat because of human recreational uses, and the concentration of their remaining colonies in small areas, rather than scattered widely as in historical times, has made them vulnerable to predation by a variety of predators.

The California least tern colonies closest to the project area are located at the mouth of the Santa Ana River, approximately 1.3 miles northwest of the proposed Near-shore Sand Disposal site A, and on a man-made island near the head of Upper Newport Bay, approximately 4.0 miles northeast of the project area. Birds from these colonies could potentially forage in the near-shore waters proposed as sand disposal sites, but would be unlikely to do so regularly or intensively.

Western Snowy Plover (*Charadrius alexandrinus nivosus*)

This Pacific coast population of this small shorebird is federally listed as threatened, and it is also a California Species of Special Concern. The current Pacific coast breeding population extends from Washington south to southern Baja California Sur. These birds winter mainly in along the coast from southern Washington to Central America. Western snowy plovers nest on beaches, many of which have been subjected to habitat degradation caused by human disturbance, urban development, introduced beachgrass (*Ammophila arenaria*), and expanding predator populations. Frequent mechanical raking to remove garbage, kelp, and other debris makes beaches unsuitable for nesting and probably harms food resources for wintering plovers by eliminating substrates supporting flies and other invertebrates important in the birds' diets. Humans and dogs also disturb roosting birds on heavily used recreational beaches, but effects of such disturbance have not been quantified.

The western snowy plover is a year-round resident of Orange County beaches, although it is found only locally during both breeding and non-breeding periods. There is an influx of birds from outside of the county during the fall and winter months, typically from other coastal areas in southern California. The nearest consistent nesting location for the western snowy plover is at the mouth of the Santa Ana River, approximately 2.4 miles northwest of the proposed sand disposal site at the base of the Newport Pier. The only consistent snowy plover winter roosting site on the Balboa Peninsula is located in the vicinity of E and F Streets, approximately 2.0 miles southeast of Newport Pier (Peter Knapp pers. comm.). In 2009, a snowy plover nest at this location produced three young (Peter Knapp pers. comm.). Mr. Knapp recorded 62 snowy plovers at this location on 5 October 2009. Hamilton Biological Consulting (2009, Appendix 1) found only 18 there on 12 October 2009, but this was at mid-day, when most of the birds were out foraging on the local beach rather than roosting in a large group. The snowy plover is unlikely to occur in any areas proposed for project impacts except as a rare transient.

2.4.7 Marine Mammals

Several species of marine mammals have a potential to occur within the project site-the pinnipeds California sea lion (*Zalophus californica*) and harbor seal (*Phoca vitulina*)- and cetaceans-the bottlenose dolphin (*Tursiops truncatus*) and the California gray whale (*Eschrichtius robustus*).

California sea lions, harbor seals, and bottlenose dolphin are occasional to common visitors in the Newport Harbor Entrance Channel, and common in the near-shore waters of Newport Beach. There are no rookeries or haul outs on the Balboa Peninsula.

In June 1994, the California gray whale eastern pacific population was removed from the Federal Endangered Species List, due to recovery of population numbers to near the estimated sustainable population size. The gray whale migrates through the SCB twice each year, traveling between its feeding grounds in Alaska and its breeding grounds in Baja California. The southern migration through the Southern California Bight (SCB) between Point Conception and the Mexican Border occurs from December through February, with pregnant females moving through the area first. The northward migration begins in February and lasts through May, peaking in March (Bonnell and Dailey, 1993). Solitary animals generally lead the northbound migration with cow-calf pairs following 1 to 2 months later (Foster and Schiel 1985). Gray whales migrate within 125 miles (200 km) of the shoreline and many are sighted within 9 miles (15 km) of shore (Bonnell and Dailey, 1993). On the northbound migration, cow-calf pairs are believed to more closely follow the shoreline rather than the offshore route (Dailey et al. 1993). Gray whales are commonly observed offshore of the Entrance Channel and along the Balboa Peninsula, but usually offshore of the proposed near-shore sand disposal Sites A and B. The potential for individuals to occur in the local project area is greater during March and April, when cow/calf pairs travel close to shore on their northbound migration.

2.5 ESSENTIAL FISH HABITAT

The assessment of Essential Fish Habitat (EFH) for the project is being conducted to conform with the 1996 amendments to the Magnuson-Stevens Fishery Management and Conservation Act (Federal Register 62, 244, December 19, 1997). The 1996 amendments to the Magnuson-Stevens Act set forth a number of new mandates for the National Marine Fisheries Service, eight regional fishery management councils, and other federal agencies to identify and protect important marine and anadromous fish habitat. The councils, with the assistance from NMFS are required to delineate EFH for all managed species. Federal action agencies which fund, permit, or carry out activities that may adversely impact EFH are required to consult with NMFS regarding the potential effects of their actions on EFH, and respond in writing to the NMFS recommendations.

EFH is defined as “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity”. An adverse effect is “any impact which reduces the quality and/or quantity of EFH”. Adverse effects may include direct or indirect physical, chemical, or biological alterations of the waters or substrate and loss of, or injury to benthic organisms, prey species, and their habitat, and other ecosystem components. Adverse effects may be sites specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions [50 CFR 600.910(a)].

2.5.1 Fisheries Management Plan Species

The Coastal Pelagics FMP includes four finfish (Pacific sardine, Pacific mackerel, northern anchovy, and jack mackerel) as well as market squid. The Pacific Groundfish FMP includes 83 species, many of which are rockfish but also include sharks, skates, ratfish, morids, grenadiers, roundfish cabezon, greenlings, Pacific cod, Pacific whiting, sablefish, and lingcod .

Newport Bay is located in an area designated as EFH in the Coastal Pelagics Fisheries Management Plan (FMP) and the Pacific Groundfish FMP. Four coastal pelagic species-the northern anchovy, pacific sardine, jack mackerel, and Pacific mackerel-potentially occur within Newport Bay or offshore of Newport Beach and Huntington Beach at depths within the 30 ft contour (MBC Applied Environmental Sciences, 1988; Coastal Resources Management, Inc. 2008). Of these, the northern anchovy contribute moderate-to-heavy abundances to the nearshore fish community and can be abundant within Newport Bay (Coastal Resources Management, 2008; MEC, 1997). Northern anchovy comprise a portion of the commercial bait fishery in San Pedro Bay and a commercial bait fishing operation operates in the Newport Harbor entrance channel that provides northern anchovy to sports fishermen. Groundfish FMP species potentially present within Newport Harbor and within the 30 ft depth contour offshore of Newport Beach and Huntington Beach include California scorpion fish, vermillion rockfish, calico rockfish, bocaccio, California skate, spiny dogfish shark, and leopard shark (Coastal Resources Management, 2008, MBC Applied Environmental Sciences 1988).

FMP species that have been caught offshore of Newport Beach and in the Newport Submarine Canyon at depths generally greater than 80 meters by the Newport Dory Fishing Fleet (Cross 1984)) include northern anchovy and Pacific mackerel. Groundfish FMP species caught by the Dory fishing fleet include sablefish, shortspine thornyhead, several species of rockfish, long spine hornyhead, Dover sole, spiny dogfish shark, and spotted ratfish (Cross, 1984).

2.5.2 Habitat Areas of Particular Concern

Habitat Areas of Particular Concern (HAPC) are described in the regulations as subsets of EFH which are rare, particularly susceptible to human induced degradation, especially ecologically important, or located in an environmentally stressed area National Marine Fisheries Service, 2005). Newport Harbor (Lower Newport Bay) and Upper Newport Bay are estuarine and eelgrass habitats that are considered HAPC for various federally managed fish species within Coastal Pelagic and Pacific Groundfish Fisheries Management FMPs, under EFH provisions of the 1996 amendments to the Magnuson-Stevens Fishery Management and Conservation Act (FR 62, 244, December 19, 1997). Designated HAPC within Newport Bay that include estuaries and eelgrass are not afforded any additional regulatory protection under the Magnuson-Stevens Fishery Conservation and Management Act (1997). However, federally permitted projects with potential adverse impacts to HAPC are more carefully scrutinized during the consultation process (National Marine Fisheries Service, 2008). Eelgrass is located in China Cove (Coastal Resources Management, Inc. 2008, 2009 in progress), within 100 feet of the proposed beach disposal site. Coastal or marine habitats comprise a variety of broad habitat types for EFH managed species including sand bottoms, rocky reefs, and submarine canyons. The waters offshore of the Newport Beach are also in areas designated as EFH in the Coastal Pelagics FMP and the Pacific Groundfish FMP. The project vicinity seafloor is sand bottom and the Newport Submarine Canyon is located between near-shore sand disposal sites A and B, extending to continental slope depths of several hundred meters.

2.6 INVASIVE SPECIES

2.6.1 Invasive Algae *(Caulerpa taxifolia)*

Caulerpa (Figure 7) has a potential to cause ecosystem-level impacts on California's bays and nears-shore systems due to its extreme ability to out-compete other algae and seagrasses. *Caulerpa taxifolia* grows as a dense smothering blanket, covering and killing all native aquatic vegetation in its path when introduced in a non-native marine habitat. Fish, invertebrates, marine mammals, and sea birds that are dependent on native marine vegetation are displaced or die off from the areas where they once thrived. It is a tropical-subtropical species that is used in aquariums. It was introduced into southern California in 2000 (Agua Hedionda Lagoon and Huntington Harbour) by way of individuals likely dumping their aquaria waters into storm drains, or directly into the lagoons. While outbreaks have been contained, the Water Resources Board, through the National Marine Fisheries Service and the California Department of Fish and Game require that projects that have potential to spread this species through dredging and bottom-disturbing activities conduct pre-construction surveys to determine if this species

Figure 14. The invasive algae, *Caulerpa taxifolia*. Source: NOAA/NMFS

is present using standard agency-approved protocols and by National Marine Fisheries Service/California Department of Fish and Game Certified Field Surveyors.

Biologists did not observe any invasive algae, *Caulerpa taxifolia* in the general vicinity of the project site during either 2005 or 2007 surveys near Carnation Cove (Coastal Resources Management Inc., 2008), or during site dives in China Cove in August 2008 (Coastal Resources Management, Inc. pers. observations). Its potential to occur in the near-shore project area is extremely low.

2.6.2 *Undaria pinnatifida (wakame)*

Undaria pinnatifida (Figure 9) is a golden brown kelp native to the Japan Sea. It has been introduced in Australia, New Zealand, and Europe and has now spread to the California coastline. It has been found in several bodies of water including Monterey Harbor, Santa Barbara Harbor, Port Hueneme, Channel Islands Harbor, Ventura Harbor, Long Beach Harbor, Anaheim Bay, San Diego Bay, and the waters surrounding Catalina Island (Silva et al., 2002, R. Ware, pers. observations). In Japan it is known as wakame and is extensively cultivated as a fresh and dried food plant. However, it has the potential to become a major pest in our coastal waters. *Undaria* grows to between 3 to 7 feet (1 and 2 m) tall and is found in sheltered harbor waters on rocks, breakwaters, and marine debris from the low-tide mark to 50 feet (15 m). A mature plant has a distinctive, spiraled (frilly), spore-producing structure at its base. It also has an obvious central stem to 4 inches (10 cm) wide that extends for the length of the plant (Figure 15). The blade may be up to 3.1 feet (1 m) wide and extends from the tip of the plant for half the length of the plant. It has not been reported from Newport Beach outer coast or from within Newport Harbor.

Figure 15. *Undaria pinnatifida* (Source: CRM, Inc.)

3.0 POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

3.1 DESCRIPTION OF PREFERRED PROJECT ALTERNATIVE

The City of Newport Beach proposed to use sandy material excavated from the site as beach fill material along the Balboa Peninsula and in China Cove (Newport Bay). The sites proposed for beach replenishment, amount of material each site can accommodate, disposal method, and location of disposal (on beach or nearshore) are shown in Table 1 and illustrated in Figures 1-3. In addition to these sites, some fill will be required for the project (on-site), and approximately 3,000 cy of contaminated material will be disposed offsite at an upland disposal site which accepts contaminated material, which is unknown location at this time.

3.2 DEFINITIONS OF SIGNIFICANT IMPACTS

Potential impacts to marine resources are classified into several categories; significant and unmitigable, significant but mitigable, adverse but not significant, and beneficial.

Several factors were taken into account when identifying the level of impact: duration of impact, rates of recovery of habitat and populations, and how an impact might affect habitats, communities, or individuals of a population.

Significant impacts are defined as:

- The populations of an endangered species, threatened species, fully protected species, or species identified by state and federal resource agency as “sensitive” is directly affected, its breeding habitat impaired, or critical foraging or breeding habitat is lost or substantially affected;

- The movement of any sensitive species is impeded;

- Sensitive resources (reefs, kelp beds, surfgrass beds, and eelgrass beds) are affected for a period of time that will substantially reduce the ability of resources to recover.

Significant impacts are considered mitigable if the resources can be returned to its previous level of structure and function through a viable restoration program and if the restoration of the resource is considered feasible by resource agencies.

Impacts are considered adverse but not-significant if (1) the project would disturb habitats and individuals but would not result in long-term population effects, beach fill and/or near-shore sand movement would result in a short-term sedimentation increase but not persistent burial of the resource.

3.3 WATER AND SEDIMENT QUALITY IMPACTS

3.3.1 Turbidity

China Cove. Beach disposal material will be trucked into China Cove, reducing the potential for dispersal of any fine sediment into the Bay. The level of turbidity generated is expected to be low since the material will be beach-compatible and contain low percentages of silt.

Level of Impact. The turbidity plume created during beach disposal of sands is expected to have an adverse but not-significant short-term effect on local water quality. Some localized turbidity will continue until the nourished shoreline reaches an equilibrium profile.

Mitigation. No mitigation is required. Although not required, implementation of the following mitigation measure would ensure that turbidity levels associated with the proposed project do not exceed ambient levels.

1. During construction, daily monitoring of turbidity during sand placement shall be conducted to ensure turbidity levels do not exceed ambient levels as measured points beyond a radius of 300 feet downcoast of the placement site for a prolonged period, assumed to be 5 days. If ambient turbidity levels within 300 feet of shoreline are exceeded, the condition will be documented and placement may be modified to reduce turbidity. Turbidity plume observations shall be documented with photographs, and maps of maximum daily plumes shall be reported to the City after construction. Observations of swell, wind, and tide conditions shall also be recorded to correlate with turbidity conditions.

Marine Center, Newport Pier. Beach disposal material will be trucked on to the beach, reducing the potential for dispersal of any fine materials into the surf zone during beach fill operations. The level of turbidity generated is expected to be low since the material will be beach-compatible and contain low percentages of silt. Turbidity will be generated during high tides and high surf conditions, that will naturally increase near-shore turbidity.

Level of Impact: The turbidity plume created during beach disposal of sands at the Marine Center is expected to have an adverse but not-significant short-term effect on local water quality. Some localized turbidity will continue until the nourished shoreline reaches an equilibrium profile.

Mitigation: No mitigation is required. Although not required, implementation of the following mitigation measure would ensure that turbidity levels associated with the proposed project do not exceed ambient levels.

2. During construction, daily monitoring of turbidity during sand placement shall be conducted to ensure turbidity levels do not exceed ambient levels as measured one-quarter mile offshore at or downcoast of the placement site for a prolonged period, assumed to be 5 days. If ambient turbidity levels within one quarter mile of shoreline are exceeded, the condition will be documented and placement may be modified to reduce turbidity. Turbidity plume observations shall be documented with photographs, and maps of maximum daily plumes shall be reported to the City after construction. Observations

of swell, wind, and tide conditions shall also be recorded to correlate with turbidity conditions.

Near-shore Sand Replenishment, Sites A and B. Beach disposal material will be barged to the Site and B near-shore beach disposal sites from the project area in Newport Harbor. The typical near-shore disposal plan is shown in Figure 16. Barges will approach the disposal site and release the fill material between the 3 and 10 meter isobaths (10 to 29.5 feet), 50 meters to 300 meters (164 to 984 feet) offshore, depending upon the barge's operational capabilities. The level of turbidity generated is expected to be low since the material will be beach-compatible and contain low percentages of silt. Turbidity will be generated during high tides and high surf conditions, that naturally increase near-shore turbidity.

Level of Impact: The turbidity plume created during near-shore sand replenishment is expected to have an adverse but not-significant short-term effect on local water quality. Some localized turbidity will continue through the completion of near-shore disposal operations and the seafloor reaches an equilibrium profile.

Mitigation: No mitigation is required. Although not required, implementation of the following mitigation measure would ensure that turbidity levels associated with the proposed project do not exceed ambient levels.

3. During construction, daily monitoring of turbidity during sand placement shall be conducted to ensure turbidity levels do not exceed ambient levels as measured at a distance one-half mile offshore at or downcoast of the placement site for a prolonged period, assumed to be 5 days. If ambient turbidity levels within one half mile of shoreline are exceeded, the condition will be documented and placement may be modified to reduce turbidity. Turbidity plume observations shall be documented with photographs, and maps of maximum daily plumes shall be reported to the City after construction. Observations of swell, wind, and tide conditions shall also be recorded to correlate with turbidity conditions.

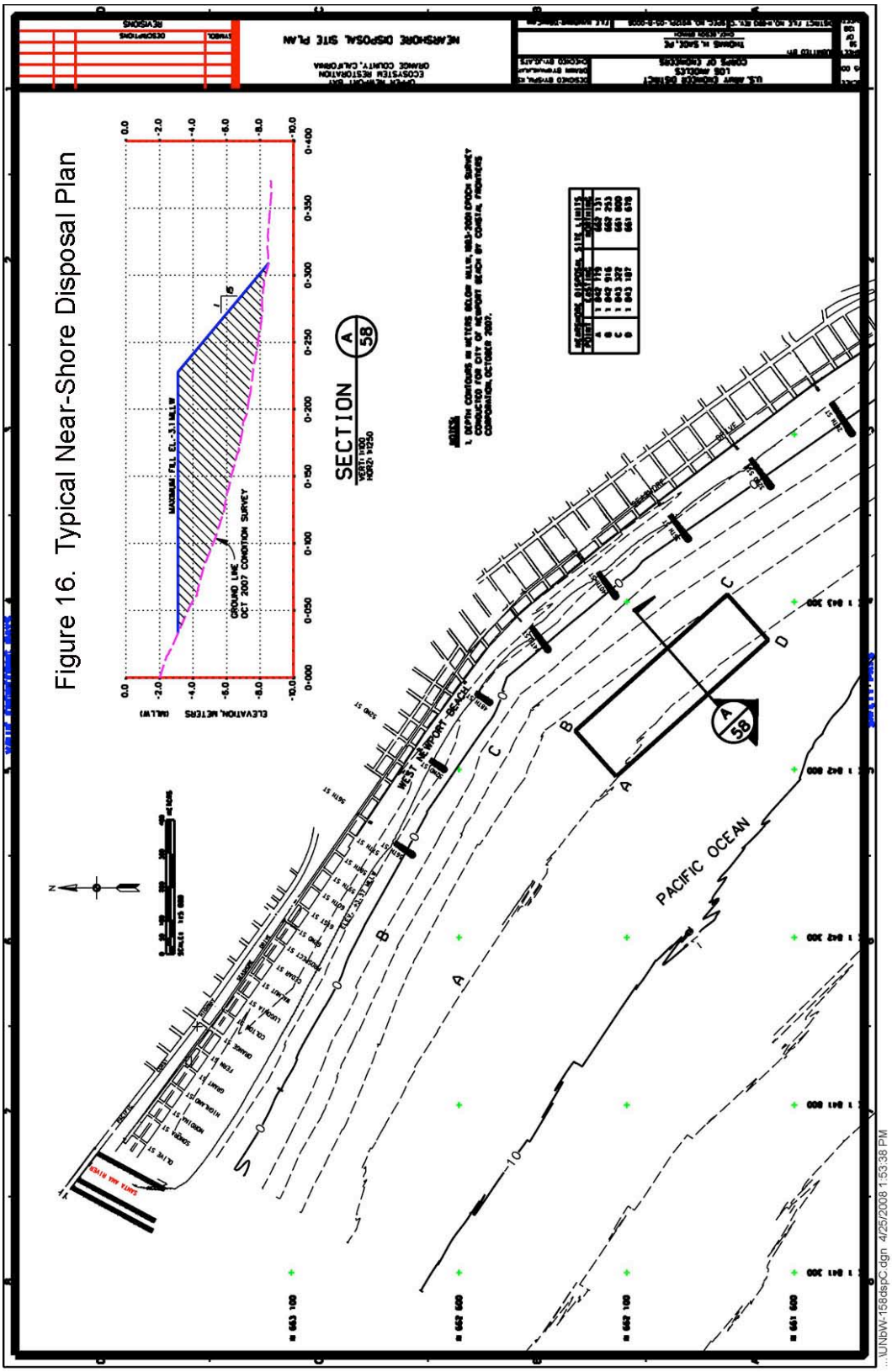


Figure 16. Typical Near-Shore Disposal Plan

3.3.2 Construction Runoff and Discharges

China Cove and Marine Center Beach Fill Sites. At the beach construction staging area spills or leaks from heavy equipment could enter runoff and or be washed into the nearshore waters, releasing petroleum products such as fuel, oil and grease, and heavy metals into the environment. Unexpected leakages of oil, hydraulic fluid, and other hazardous material associated with dredge slurry pipeline installation and maintenance could also release toxic and/or hazardous materials on the beach and/or the nearshore open waters. Debris (trash and other macro debris) could wash off the beach in storm water run off, as well as be thrown overboard from vessels.

Level of Impact: The project will have a potential for adverse, and but mitigable impacts on water quality.

Mitigation: Potential impacts would be reduced with implementation of the following mitigation measures.

1. Adhere to applicable local, state, and federal regulations including Best Management Practices for construction vehicle fueling.

2. Debris generated would be placed in trash receptacles to prevent any contamination of surface runoff.

3. Fully comply with applicable local, state, and federal water quality regulations.

4. Reasonable and prudent measures shall be taken to prevent all discharge of fuel or oily waste or other hazardous materials from heavy machinery or construction equipment or power tools on East Beach or in the nearshore project area. The City of Newport Beach and its contractors shall maintain current contingency planning guidelines and protocols at the project site, and have adequate equipment available to contain and clean up hazardous materials spills.

Near-shore Sand Replenishment Sites. Unexpected leakages of oil, hydraulic fluid, and other hazardous materials on-board barges or tugs could release toxic and/or hazardous materials on in Newport Harbor or the nearshore open waters. Debris (trash and other macro debris) could wash off the beach in storm water run off, as well as be thrown overboard from vessels.

Level of Impact: The project will have a potential for adverse, and but mitigable impacts on water quality.

Mitigation: Potential impacts would be reduced with implementation of the following mitigation measures.

1. Adhere to applicable local, state, and federal regulations including Best Management Practices for vessel fueling.

2. Fully comply with applicable local, state, and federal water quality regulations.

3. Reasonable and prudent measures shall be taken to prevent all discharge of fuel or oily waste or other hazardous materials from heavy machinery or construction equipment. The City of Newport Beach and its contractors shall maintain current contingency planning guidelines and protocols at the project site, and have adequate equipment available to contain and clean up hazardous materials spills.

3.4 IMPACTS ON NON-SENSITIVE MARINE RESOURCES

On-shore and near-shore beach sand replenishment projects would potentially bury marine organisms living within the tide zone and the near-shore subtidal habitat through the direct placement of sand on these resources. Secondly, the movement of sand discharged within the near-shore littoral drift could secondarily impact subtidal benthic organisms by increasing the depth of sediment cover and also bury subtidal benthic organisms out of the initial disposal sites. Lastly, water column turbidity created by the resuspension and transport of the fine particle constituent of the discharged beach fill material to nearshore waters may temporarily reduce primary productivity (plankton), interrupt feeding mechanisms of filter feeding fishes, and reduce the ability of sight-foraging fishes to see their prey.

3.4.1 Beach Nourishment Impacts on Sandy Intertidal and Shallow Subtidal Soft Bottom Benthic Infauna (Non-sensitive species)

China Cove and Marine Center Onshore Beach Replenishment Sites

Fill material will be placed on China Cove beach from the supra-tidal to intertidal elevations, while the beach fill material will be placed at the Marina Center site in the supra-tidal area. Both nourishment sites are sandy beach habitat. Animals that live in the high-to-low tide zone within the China Cove beach sands such as worms, clams, crustaceans, and insects are naturally adapted to living within environments that undergo seasonal environmental changes in order to feed, burrow, and reproduce. They are adapted to living deep in the sands to depths of about 2-3 feet, capable of withstanding normal fluctuations of waves, currents, erosion, and accretion cycles of storms, and are generally tolerant of extreme ranges in temperature and oxygen. If the replenishment occurs gradually, over time, many forms such as bivalves and crustaceans will be able to migrate vertically and survive. Quick and direct burial of non-motile forms however, will smother and kill the organisms. Few organisms live in the supra-tidal beach sides, with the exception of insects and insect larvae that are found in decaying material.

Beach fill material will be placed over the existing beach and intertidal habitat in China Cove that will smother intertidal-occurring sandy beach and infaunal organisms. Once beach nourishment activities are completed, planktonic larvae will resettle the China Cove beach and shallow subtidal sand habitat through tidal and wave transport mechanisms. Full recovery of the beach and shallow subtidal benthic infauna is expected to occur within one to three months.

Level of Impact: Beach fill at the Marine Center will not affect marine organisms because of the supra-tidal nature of the fill project. The effect of beach replenishment on beach fauna at China Cove is expected to be adverse, but not-significant, resulting in a temporary loss of intertidal sandy infauna and non-motile macrofauna. Once the project is completed, sandy beach and

benthic soft bottom organisms will begin to recolonize the sediments. Full recovery is expected to occur within one to three months.

Mitigation: No mitigation is required. Although no mitigation is required, implementation of Best Management Practices related to turbidity and other impacts on water quality would ensure that no adverse effects on biological resources will occur.

Near-Shore Sand Disposal Sites A and B. The soft bottom benthic community, composed primarily of polychaete worms, microcrustaceans, mollusks, and slow moving, or non-motile benthic macrofauna (i.e., snails, sea stars, sand stars, and crabs) will be temporarily disturbed by being rapidly buried by the disposal of the sand disposal material. Once operations have ceased, benthic invertebrate populations will recolonized the impacted zones.

Level of Impact: This action will result in a short-term disturbance to soft bottom benthic habitat and a short-term decrease in benthic invertebrate populations resulting in an adverse, but not significant impact to non-sensitive benthic resources.

Mitigation: No mitigation is required.

3.4.2 Impacts on Intertidal and Subtidal Hard Substrate Habitat

China Cove and Marine Center Sites

The biological community on the rocks and bulkheads nearby the China Cove site consist of mussels, barnacles, limpets, chitons, tunicates, sponges, tube snails, sea stars, and other invertebrates common to southern California hard-substrate habitats. Direct burial of hard substrate and associated marine organisms is not expected since the limits of beach fill will stop short of these habitats. Some redistribution of the beach fill material is expected to occur through longer-term and natural wave processes that have a low-potential to affect mussel and other organisms that live nearby.

Level of Impact: This action will result in minor disturbances to intertidal organisms at China Cove, but no disturbances are expected at the Marine Center site located next to the Newport Pier. At most, the disturbance at China Cove will be short-term stress resulting in an adverse, but not significant impact. No impacts on intertidal and subtidal hard substrate habitat or communities are expected to occur at the Marine Center Site located near the Newport Pier.

Mitigation: No mitigation is required.

Near-shore Disposal Sites A and B

The biological community on the groins within Disposal Site A and on the pier pilings between Disposal Sites A and B also consist of mussels, barnacles, limpets, chitons, tunicates, sponges, tube snails, sea stars, and other invertebrates common to southern California hard-substrate habitats. Direct burial of hard substrate and associated marine organisms is not expected. Redistribution of the near-shore placed sands is expected to increase subtidal elevations that potentially could bury some hard-bottom habitat at the base of the groins. However, these

habitats are continually subjected to burial and scour, which results in low species diversity and abundances. Consequently, any redistribution of the near-shore material placed in the vicinity of these structures is not expected to have an impact on these benthic marine resources.

Level of Impact: None.

Mitigation: No mitigation is required.

3.4.3 Open Water Habitat

China Cove. Beach filling from the shore will potentially create a minor turbidity plume in the as beach fill material is moved to the water line and is agitated and redistributed by wave action and tidal surge. While the spread of a turbidity plume could temporarily reduce phytoplankton primary production due to lowered submarine light intensity, the impact would be neglible since the project is relatively small, and conducted over a short period.

Demersal (bottom) and water column fishes that live in the project area are accustomed to turbid conditions in the Harbor and are not expected to be substantially affected by short-term increases in turbidity. The most likely response to a turbidity plume that exceeds their threshold for being able to find prey, or their threshold to respond to water quality degradation would be an avoidance behavior. Some species (i.e., anchovy, sardines, and grunion) are planktivores that rely upon their gills as filtering mechanisms. High levels of suspended sediments can clog their gills and impair their ability to feed as well as breathe. Since the turbidity plume is expected to be short-term and confined within a relatively small zone, fishes would swim out of the higher turbid areas to seek prey and less stressful conditions. Such behavioral changes, while adverse, would not result in mortality or impacts at a population level.

Level of Impact: Short-term adverse, but not significant resulting in short-term stressed to fishes.

Mitigation: None required. Although no mitigation is required, the implementation of Best Management Practices related to turbidity and other impacts on water quality would ensure that no adverse effects on biological resources will occur.

3.5 IMPACTS ON SENSITIVE SPECIES AND HABITATS

3.5.1 China Cove. Eelgrass is the only sensitive species that has a potential to be impacted within China Cove. No other sensitive plants, invertebrates, fishes, marine mammals, invasive algae, Essential Fish Habitat, Marine Protected Areas, reefs, or kelp beds would be affected by the placement of sand at this site.

Eelgrass. Eelgrass is located approximately 30 meters (100 feet) from proposed beach disposal operations in China Cove. Although eelgrass is capable of surviving slow rates of sand deposition (Phillips, 1984) it cannot survive quick burial. Because it is present approximately 30 meters away from the beach disposal site, there is no potential for adverse impacts related to immediate burial. Over time, these sediments may migrate seaward through tidal action and

winds that could increase the intertidal elevation at which eelgrass can survive. Eelgrass is a designated HAPC within Newport Bay.

Level of Impact: Due to its status as a sensitive species and as a Habitat of Particular Concern for federal groundfish management plan species, any loss of eelgrass as a consequence of sand disposal would be considered a significant and adverse impact. However, there is no potential for impacts related to burial since all material will be trucked to the site and placed on to the beach. Additionally, no vessels will be used for this project, eliminating the potential for anchor scarring and/or damage as a result of vessel movement.

Mitigation: Although no impacts are anticipated, pre-and-post beach replenishment surveys may be required from the California Coastal Commission and the Army Corps of Engineers. The following requirements were placed upon the City of Newport Beach and the Channel Reef Community Association for dredging at Channel Reef, temporarily pumping it to a sand-berm dewatering pit at China Cove Beach, and placing the sandy material on Corona Del Mar State Beach and the Ruby Avenue Beach in Newport Beach (Permit Application 5-06-225).

Pre-Construction Eelgrass Survey. A valid pre-construction eelgrass (Zostera marina) survey shall be completed during the period of active growth of eelgrass (typically March through October). The pre-construction survey shall be completed prior to the beginning of construction and shall be valid until the next period of active growth. The survey shall be prepared in full compliance with the "Southern California Eelgrass Mitigation Policy" Revision 8 (except as modified by this special condition) adopted by the National Marine Fisheries Service and shall be prepared in consultation with the California Department of Fish and Game. The applicants shall submit the eelgrass survey for the review and approval of the Executive Director within five (5) business days of completion of each eelgrass survey and in any event no later than fifteen (15) business days prior to commencement of any development. If the eelgrass survey identifies any eelgrass within the project area, which would be impacted by the proposed project, the development shall require an amendment to this permit from the Coastal Commission or a new coastal development permit.

Post-Construction Eelgrass Survey. If any eelgrass is identified in the project area by the survey required in subsection A of this condition above, within one month after the conclusion of construction, the applicants shall survey the project site to determine if any eelgrass was adversely impacted. The survey shall be prepared in full compliance with the "Southern California Eelgrass Mitigation Policy" Revision 8 (except as modified by this special condition) adopted by the National Marine Fisheries Service and shall be prepared in consultation with the California Department of Fish and Game. The applicants shall submit the post-construction eelgrass survey for the review and approval of the Executive Director within thirty (30) days after completion of the survey. If any eelgrass has been impacted, the applicants shall replace the impacted eelgrass at a minimum 1.2:1 ratio on-site, or at another location, in accordance with the Southern California Eelgrass Mitigation Policy. All impacts to eelgrass habitat shall be mitigated at a minimum ratio of 1.2:1 (mitigation to impact). The exceptions to the required 1.2:1 mitigation ratio found within SCEMP shall not apply. Implementation of mitigation shall require an amendment to this permit or a new coastal development permit unless the Executive Director determines that no amendment or new permit is legally required.

Pre-Construction *Caulerpa taxifolia* survey. Not earlier than 90 days nor later than 30 days prior to commencement or re-commencement of any development authorized under this coastal development permit (the "project"), the applicants shall undertake a survey of the project area and a buffer area at least 10 meters beyond the project area to determine the presence of the invasive alga Caulerpa taxifolia. The survey shall include a visual examination of the substrate.
B. The survey protocol shall be prepared in consultation with the Regional Water Quality Control Board, the California Department of Fish and Game, and the National Marine Fisheries Service.

Within five (5) business days of completion of the survey, the applicants shall submit the survey: for the review and approval of the Executive Director; and to the Surveillance Subcommittee of the Southern California Caulerpa Action Team (SCCAT). If Caulerpa taxifolia is found within the project or buffer areas, the applicants shall not proceed with the project until 1) the applicants provide evidence to the Executive Director that all C. taxifolia discovered within the project and buffer area has been eliminated in a manner that complies with all applicable governmental approval requirements, including but not limited to those of the California Coastal Act, or 2) the applicants have revised the project to avoid any contact with C. taxifolia. No revisions to the project shall occur without a Coastal Commission approved amendment to this coastal development permit unless the Executive Director determines that no amendment is legally required. No mitigation is required.

3.5.2 Marine Center

No sensitive plants, invertebrates, fishes, marine mammals, invasive algae, Marine Protected Areas, Essential Fish Habitat, reefs, or kelp beds would be affected by the placement of sand at this site. One species of bird (western snowy plover) has a low potential of occurrence in the project area.

Birds. This site (and the China Cove site) is heavily impacted by human activities and do not provide nesting habitat for birds of any kind. However, California brown pelicans and the federally threatened western snowy plover may occur within the local project area (Hamilton Biological, Inc. 2009). California brown pelicans occur commonly at the Newport Pier adjacent to the Marine Center sand disposal site, but this adaptable species routinely interacts with humans in this area and would not be significantly impacted by the proposed actions. The federally threatened western snowy plover is known to roost on open, sandy beaches, including some beaches on the Balboa Peninsula that are used by moderate numbers of people; it is possible that this species could occur as a non-breeder at the Newport Pier sand disposal site.

Level of Impact: There was a recent case in which a vehicle ran over and killed a non-breeding western snowy plover on a southern California beach, and the resource agencies have expressed concern that any sick plovers may be unable to move out of the way of heavy equipment working on a beach. If sand disposal actions were to result in death, injury, or harassment of one or more roosting western snowy plovers this would constitute a potential violation of the federal Endangered Species Act, a potentially significant impact.

Mitigation: To ensure against any potential adverse effects upon the federally threatened western snowy plover, a qualified biological monitor shall inspect the sand deposition site at Newport Pier immediately before sand is disposed of at this site and throughout the period when

sand is being deposited on the beach. The monitor shall have experience surveying for Snowy Plovers and shall be approved by the U.S. Fish & Wildlife Service prior to conducting this work. The monitor shall have the authority to immediately stop work if any snowy plovers that may be present show signs of stress or disturbance as a result of the sand disposal work. Work shall only resume with the monitor's approval. Implementation of this recommended mitigation measure would ensure that sand disposal actions would not entail any potentially significant impacts upon the western snowy plover. With implementation of the recommended mitigation measure, the proposed sand disposal actions would result in no potentially significant impacts upon any bird species. Appendix 2 provides an example of pre, during, and post sand replenishment monitoring programs identified for the County of San Diego's Regional Sediment Management Plan (Moffatt & Nichol et al., 2008) that could be adapted to any monitoring programs adapted by the City of Newport Beach for proposed sand disposal projects along the Newport Beach shoreline.

3.5.3. Near-shore Disposal Sites A and B. Several species or sensitive habitats have a potential to occur along the Newport Beach coastline at depths between the tide zone and the 30 foot isobath.

Surfgrass. Surfgrass has a low potential to occur around the base of the groins within Disposal Site A. It is a nursery habitat for juvenile lobsters and provides habitat for a number of invertebrates and fish. Surfgrass attaches to rocks and forms meadows with an extensive root/rhizome system and has long-bladed leaves designed to withstand abrasion and at least partial sand burial. Because it occurs within the highly dynamic nearshore environment, this species is naturally adapted to periods of sand burial, and subsequent re-emergence. Some blade loss will occur as a result of these physical rigors on a seasonal basis. Consequently, it is recognized as a species that can tolerate some stress, including sand burial. The degree of sand burial it can withstand however, is not well documented and depends in part, on the duration and length of burial and recovery from disturbances such as sand burial is dependent upon if the integrity of the rhizome system is left intact after the disturbance. Since oxygen is transported from the blades to the rhizomes, the rhizomes are capable of surviving under anoxic conditions created by the sand cover (Phillips and Menez 1988). The period of survival under varying sand cover however, has not been investigated.

Since the blades must be above sand level to provide the rhizomes with oxygen, a maximum threshold sand cover criteria of two-thirds of surfgrass blade length was established to limit long-term damage. Sand cover of no more than six months was used as the threshold duration since longer-term burial of more than one season may affect the ability of new rhizome shoots to survive and grow. This threshold was conservatively established based on the period of time identified as being a maximum that surfgrass could withstand before a significant biological impact would occur for the SANDAG Regional Beach Sand Project (MEC Analytical Systems 2000).

Level of Impact: It is not clear if surfgrass is present within the project area's groin field, although because hard substrate is present, there is a low potential for it to occur. There are no natural reefs in the project area, however that would support this species. If it was present, the level of impact would likely be a short-term adverse, but not significant impact due to its ability to survive low-to-moderate amounts of sand burial for up to six months. Pre-and-post sand disposal monitoring is recommended to identify possible impacts on this species (See Appendix 2).

Mitigation. None required. However, documenting the presence of this species presence in the Disposal Area A's groin field would provide a clear understanding of the potential for this species to be impacted by near-shore sand replenishment. Appendix 2 provides an example of pre, during, and post sand replenishment monitoring programs identified for the County of San Diego's Regional Sediment Management Plan (Moffatt & Nichol et al., 2008).

Pismo Clams. The status of the Pismo clam population is not known for the project area intertidal and subtidal habitats. In the past, its presence has fluctuated widely, and no recent surveys are known that have documented this species' abundance or populations structure. Being in a zone of high sand movement, Pismo clams are naturally adapted to periodic and natural levels of burial, and they can live in the sands to a depth of about 12 inches.

Level of Impact: While it is not clear if Pismo clams are present within Disposal Areas A and B. If this species is present, the level of impact would depend upon the depth of burial and the duration of burial. Pre-and-post sand disposal monitoring is recommended to identify possible impacts on this species (See Appendix 2).

California Grunion. California grunion may spawn along the Newport Beach shoreline periodically between March and September each year, although total number and the degree of spawning success are highly variable on a year-to-year basis.

Level of Impact: The level of impact is dependent upon when and how shallow near-shore beach disposal would occur. No impacts would occur if the projects are conducted between September and the end of February. No monitoring or mitigation would be necessary.

If near-shore sand disposal were to occur between March and August, then the potential for impact is greater and there could potentially be short-term adverse, but mitigable impacts on this sensitive species.

If beach nourishment was to occur in or immediately offshore the surf zone compared to farther offshore, then the potential for impact to grunion would be greater.

Any shoreline vehicular movement along the shoreline and/or spreading beach material associated with sand disposal would result in temporary, adverse impacts to grunion spawning habitat. This will temporarily degrade grunion spawning habitat until the project is completed and new beach slopes have stabilized.

While the entire Newport Beach shoreline is potentially grunion spawning habitat, it will not be known to what degree grunion will use the region within Site A (40^{th} to 52^{nd} Streets) or Site B (16^{th} to 5^{th} Streets) until the grunion season is underway. The degree of impact to spawning grunion and beach habitat would be related to changes in beach slope and if these projects would involve any shoreline activities. Every possible means will be implemented to ensure that grunion spawning habitat is protected and spawning success is achieved if grunion are present during sand disposal operations.

Offshore of the surf zone, the likelihood of impacts to schooling grunion would be minimal.

Mitigation:

Should shoreline beach disposal activity (use of vehicles or equipment) or near-shore surf-zone sand disposal occur during the grunion spawning season (as defined by the California Department of Fish Game grunion calendar), the City of Newport Beach shall prepare and implement a beach nourishment grunion habitat protection plan prior to start of sand disposal activities on the project site, to include:

1. Temporal BMPs, such as avoidance of known spawning area during grunion runs, to avoid disturbances to grunion spawning activity and to minimize damage to grunion spawning habitat;

2. conduct pre-construction monitoring surveys within three weeks of proposed construction to determine the potential for grunion to use Newport Beach Disposal Sites A and B during beach nourishment activities;

3. conduct grunion monitoring during known grunion run activities while onshore or near-shore beach nourishment activities are in progress to assess if the project sites will be impacted;

4. implement avoidance measures, if feasible, to minimize impacts within Disposal Sites A and B during beach or near-shore sand disposal activities if spawning activity is observed by berming off beach habitat within 100 ft of where spawning is observed; and

5. conduct post-beach nourishment grunion spawning success monitoring surveys for two-months if the projects impact grunion habitat. The first post-construction survey will be conducted during the first grunion run following completion of sand disposal activities. The survey results will be included in a report that be submitted to the City of Newport Beach, National Marine Fisheries Service, CDFG, and California Coastal Commission within 30 days after the final grunion run.

If sand disposal activity occurs between September and the end of February, or outside of the 15 ft isobath, then the level of impact will be no impact, and no mitigation or monitoring would be required.

California Halibut. Juvenile and adult halibut are common offshore of Newport Beach. This species was the 7th most abundant species collected in otter trawl surveys offshore of Seal Beach between 1972 and 2006 (MBC Applied Environmental Sciences, 2006) and the 5th most abundant species collected offshore of Huntington Beach between 1978-1988 (MBC Applied Environmental Sciences, 1988). It is considered a sensitive resource because of its value as sports fish and commercial species. Proposed beach nourishment could temporarily affect individuals as a consequence of disturbing shallow water habitat, since both juveniles and adults frequent offshore of the project area. Individuals that are disturbed will migrate out the zone of effects. No mortality or long-term impacts on a population level will occur.

Level of Impact: Short-term adverse, but not significant resulting in short-term stressed to halibut populations.

Mitigation: None required.

Marine Reptiles (Sea Turtles). Near-shore sand disposal operations will potentially occur within a corridor where green sea turtles have been occasionally sighted. Therefore, there is a potential that green sea turtles may be in the general project area during near-shore sand disposal operations and where vessels and dredge scows would be transiting to-and-from Newport Harbor.

Although an occasional green sea turtle may be present, the potential for adverse impacts to an individual is low since only a small number of barge-loads would be needed. Vessel movements have a very low potentially to result in a behavioral modification (a "take" of a endangered species) to this species that would include a change in swimming behavior to avoid excessive noise, turbidity, or the vessel movements. However, no mortality is anticipated to occur as a result of the proposed project.

Level of Impact. The unauthorized take of an endangered species would constitute a short term adverse, but mitigable impact on an endangered species. However, the potential for this occurrence is low.

Mitigation. If a sea turtle is present in the project area during near-shore sand disposal activity, the mitigation measure identified below would reduce potential short-term, significant but mitigable to adverse and not-significant.

1. If a sea turtle is within 100 meters radius of any near-shore sand disposal operations, disposal activity should be halted until the turtle is safely out of the area.

2. Vessel crews should be cognizant of the potential for sea turtles to be present within the project area. Crews should be trained to spot and avoid sea turtles while transiting to and from Newport Harbor.

Marine Birds. The near-shore disposal sites could possibly serve as foraging habitat for small numbers of California brown pelicans, black skimmers, or California least terns, but these sites are not known or expected to be of particular value to these or other foraging seabird species. Furthermore, only a small number of barge-loads would be needed to dispose of the sand at the near-shore sites, so any adverse effects that might occur, such as a temporary increase in turbidity, would have no significant impacts to foraging pelicans, skimmers, terns, or other bird species (Hamilton Biological, 2009).

Marine Mammals. All marine mammals are protected by the Federal Marine Mammal Protection Act of 1972 (MMPA). The MMPA prohibits the intentional taking, import, or export of marine mammals without a permit. Several of the species that occur within the SCB are also protected under the Federal Endangered Species Act of 1973 (ESA). A species that is listed as threatened or endangered under the ESA is categorized as depleted under the MMPA. Unintentional take of a depleted species is allowed by permit only if the activity is determined to

have a negligible impact. Intentional take of a depleted species is only allowed under a scientific research permit.

Vessel traffic transiting to and from the near-shore disposal sites (barges, tugs, work vessels) would be operating in waters where California sea lion, Pacific harbor seal, California gray whale, bottlenose dolphin, and other marine mammals occur. These species, including the cow-calf gray whale pairs can occur as close as the surf line (Poole, 1982; Bonnell et al., 1992), R. Ware, personal observations), and gray whales have been observed immediately offshore of Newport Pier (R. Ware, pers. observations) between early-to-late spring. More common however, they will be present in a divergent pathway offshore, heading across the Huntington Beach Flats, where small-to-large sized vessels operate and where few, if any collisions and/or marine mammal interactions occur.

Hypothetically, work vessels could collide with marine mammals. However, marine mammals are mobile and are generally capable of avoiding boat traffic (American Petroleum Institute, 1983) especially at the speeds the vessels would likely be transiting. Also, marine mammals in the local waters have habituated, to some degree, to vessel traffic since vessels commonly transit the waters offshore Newport Harbor. Vessel operators are also trained to recognize the presence of marine mammals which reduces the potential for adverse impacts.

In the event a pinniped or cetacean is injured or killed as consequence of a collision, the impact would be a locally significant impact and a "take" a protected species, but it would not result in a population-level impact. Should a marine mammal be injured or killed, the vessel operator and the City of Newport Beach will immediately notify the National Marine Fisheries Service (Southwest Division) and will submit a written, follow up report within 24 hours of the incident.

Marine mammals can sense underwater noise and vibrations coming from onshore and offshore sources, although moving sound sources from vessels and aircraft seem to be more disturbing than stationary sources such as drilling rigs, drill ships, and dredging operations (American Petroleum Institute, 1983). Over time, marine mammals in the region would acclimate to dredge-operation noises. Marine mammals could come within a close range slurry pipeline operations, and although they would likely able to "sense" the noise, the magnitude and intensity of the source sounds are unlikely to result in any significant changes in behavior. Such types of sounds and their intensity levels are common throughout the range in which these marine mammals live.

Only a small number of barge-loads would be needed to dispose of the sand at the near-shore sites, which lowers the potential for both possible vessel-marine mammal interactions and avoidance behaviors by marine mammals due to an increase of underwater noise and vibrations.

Level of Impact. The "taking" of a marine mammal as a consequence of vessel operations would be a short term, adverse but mitigable impact if vessel operators approach within 100 yards of a marine mammal or vessel operations result in the death of a marine mammal.

Mitigation. If a protected marine mammal is present in the nearshore project area, the mitigation measure identified below would reduce potential short-term, significant but mitigable to adverse and not-significant.

1. Vessel crews should be cognizant of the potential for marine mammals, including sea lions, whales, and dolphins to be present within the project area. Crews should be trained to spot and avoid marine mammals while transiting to and from the slurry pipeline project area.

Fishery Management Plan Species. Of the several FMP species identified from the local project region, only the northern anchovy is expected to be in the near-shore Newport Beach waters in substantial numbers. However, the temporary nature of any turbidity plume created by sand disposal is expected to have an adverse, but not-significant impact on this species. No mortality is expected. This species will likely avoid any sediment plume originating from the project, which would constitute a schooling behavioral change.
Level of Impact: Turbidity related to beach nourishment activities is expected to be adverse, but not-significant resulting in temporary, minor behavior disturbances FMP species.

Mitigation: None required.

Designated Habitat Areas of Particular Concern (HAPC). HAPCs in the region include kelp beds, reefs, and submarine canyons. Of these, none occur within the near-shore Disposal Sites A and B.

Level of Impact. No impact.

Mitigation. None required.

Sensitive Habitats.

Reefs. No Impacts.

Kelp Beds. No Impacts.

Submarine Canyons. No Impacts.

Marine Protected Areas. No Marine Protected Areas occur in the proposed near-shore disposal sites.

Invasive Species

Caulerpa taxifolia. *Caulerpa* is not known to be present within the near-shore disposal site project areas which precludes the potential spread of this species during sand disposal activities. However, a *Caulerpa* algae survey will be conducted according to the National Marine Fisheries Service Control Protocol prior to construction.

Level of Impact. None if not found in the project area. If found, then the impact will be a significant adverse, but mitigatable impact.

Mitigation. If this species is found, then protocols for the eradication of *Caulerpa* will be implemented to remove this species from the project area. (http://swr.ucsd.edu/hcd/CaulerpaControlProtocol.htm). The City will conform to the 2008 Caulerpa Control Protocol, which requires survey results to be submitted to NOAA and California Department of Fish and Game (CDFG) within 15 days of completion. This protocol also requires that NOAA and CDFG be notified within 24 hours if *Caulerpa* is identified at a permitted project site.

3.5 LONG TERM OPERATIONAL IMPACTS

3.5.1 China Cove and Marine Center

Water Quality and Sediment Quality. The proposed projects will have no long-term impacts on water quality.

Sand Beach and Subtidal Soft Bottom Habitat Communities. The proposed project will have no long-term impacts on sand beach or nearshore soft bottom benthic communities.

Rocky Intertidal/Hardscape. The proposed project will have no long-term impacts on rocky intertidal or subtidal marine organisms or rock habitat.

Open Water. The proposed project will have no long-term impacts on open water habitats or biological resources.

Special Status Species. The proposed project will have no long-term impacts on species that have special biological status.

Fisheries Management Plan Species. The proposed project will have no long-term impacts on FMP species.

Sensitive Habitats. The proposed project will have no long-term impacts on sensitive habitats.

Invasive Species. The proposed project will have no long-term impacts on invasive species.

3.5.2 Near-shore Sand Disposal Sites A and B.

Water Quality and Sediment Quality. The proposed projects will have no long-term impacts on water quality.

Sand Beach and Near-shore Benthic Soft Bottom Habitat Communities. The proposed project will have no long-term impacts on sand beach or nearshore soft bottom benthic communities.

Rocky Intertidal/Hardscape. The proposed project will have no long-term impacts on rocky intertidal or subtidal marine organisms or rock habitat.

Open Water. The proposed project will have no long-term impacts on open water habitats or biological resources.

Special Status Species. The proposed project will have no long-term impacts on species that have special biological status.

Fisheries Management Plan Species. The proposed project will have no long-term impacts on FMP species.

Sensitive Habitats. The proposed project will have no long-term impacts on sensitive habitats.

Invasive Species. The proposed project will have no long-term impacts on invasive species.

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5.0 LIST OF PREPARERS

Rick Ware, Coastal Resources Management, Inc.
Robb Hamilton, Hamilton Biological, Inc.

APPENDIX 1.
HAMILTON BIOLOGICAL INC., PROJECT REPORT

HAMILTON BIOLOGICAL

October 15, 2009

Rick Ware, President/Senior Marine Biologist
Coastal Resources Management, Inc.
PMB 327, 3334 East Coast Highway
Corona del Mar, CA 92625

SUBJECT: CEQA EVALUATION OF POTENTIAL EFFECTS OF MARINA PARK SAND DISPOSAL PROJECT ON BIRDS

Dear Rick,

At your request, this letter report provides a CEQA-level evaluation of the potential effects of implementing the proposed Marina Park Sand Disposal project on biologically "sensitive" bird species. It is my understanding that this letter report will be used as part of a supplemental EIR that you are preparing for the City of Newport Beach to cover only the sand disposal aspect of the Marina Park renovation project; the rest of the project's effects were addressed in a previous EIR, No. 2008051096, completed in early 2009. This report describes the general bird resources known or potentially present along the shoreline, and any species listed as threatened or endangered by state or federal governments, as well as California Species of Special Concern and any other species of local or regional interest.

PROJECT OVERVIEW

The Marina Park project site, currently a trailer park and public beach, is located in Newport Beach, on the bay (north) side of West Balboa Boulevard between 15th and 19th Streets (Figures 1–3). This report evaluates the potential effects of replacing sand from the project site with imported fill, and using (a) trucks to move some of the sand to two onshore beach disposal sites located near Newport Pier and at China Cove in Newport Bay, and (b) barges to move the rest of the sand to one or two near-shore beach replenishment areas within approximately 100 meters of the shoreline (see Figure 2).

METHODS

I conducted two mornings of reconnaissance surveys, on 30 September 2009 and 12 October 2009, covering the Marina Park project site and the two onshore areas proposed for sand disposal. I spent a total of approximately two hours at the Marina Park site, three hours at the Newport Pier sand deposition site, and one hour at the China Cove sand deposition site. Weather was good on both mornings, with temperatures between 61 and 74° F, light to moderate winds, and good visibility. I recorded all bird species seen at each site and evaluated the potential for sensitive bird species to occur at these sites. I inspected all trees and other vegetation for potential heron or egret nests, and inspected the ground for the whitewash that typically accumulates beneath nest or roost sites.

316 Monrovia Avenue · Long Beach, CA 90803 · 562-477-2181 · Fax 562-433-5292

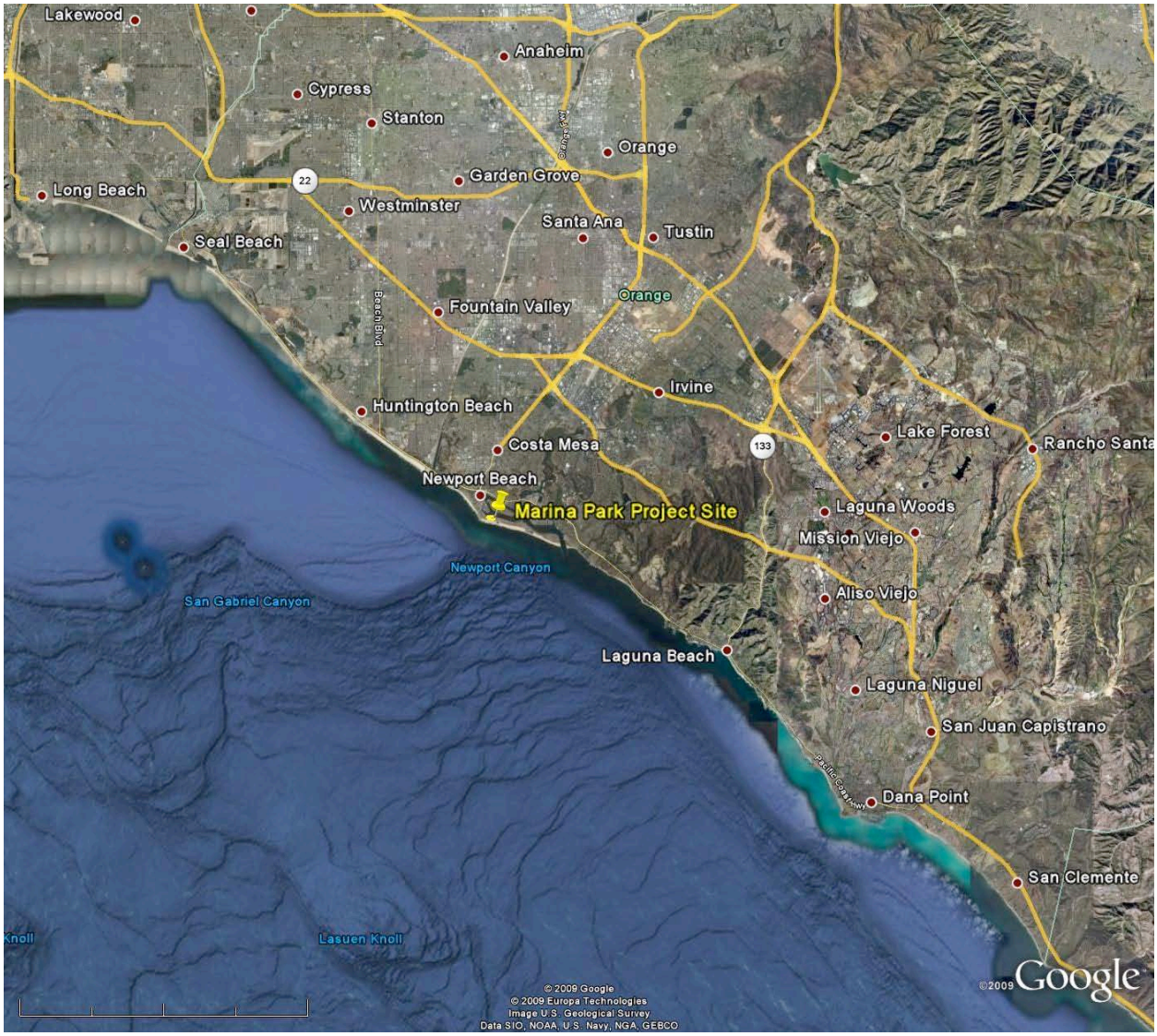

Figure 1. Regional Location.

Figure 2. Project Vicinity.

On 5 October 2009 I inquired with local birder Peter Knapp about known locations of winter roosts of the federally listed Western Snowy Plover (*Charadrius alexandrinus nivosus*) in Newport Beach. On 12 October 2009 I checked the location that he described as the only consistent Snowy Plover roost on the Balboa Peninsula, located between E and F Streets, approximately two miles south of the Marina Park project site. On that date, I spent approximately 30 minutes checking the local area for roosting and foraging plovers.

As part of preparing this report, I reviewed a report dated 12 October 2009 from the California Natural Diversity Data Base covering the Newport Beach, Seal Beach, Los Alamitos, Anaheim, Orange, Tustin, and Laguna Beach U.S.G.S. topographic quadrangles. I also reviewed the current DEIR for the Marina Park project, dated 26 February 2009, prepared for the City of Newport Beach by Michael Brandman Associates.

SETTING

Marina Park Project Site

The Marina Park project site, shown in Figure 3, consists of a trailer park, public beach, and limited areas of turf and landscaping. The potential biological effects of project implementation upon the project site itself have already been evaluated in the existing EIR, prepared in early 2009. My surveys of the project site confirmed the adequacy and accuracy of the existing biological study of this parcel and did not reveal any potential heron nesting or roosting sites, or any other potential biological constraints not previously considered.

Figure 3. Marina Park project site, outlined in yellow. Exhibit 5.3-1 in the existing DEIR for this project provides a current Plant Communities Map for this parcel.

Newport Pier Sand Disposal Site

This proposed sand disposal site is located between the base of Newport Pier and the southern terminus of 19th Street (Figure 4). The site consists of open, sandy beach that is heavily used by beachgoers on weekends. Just north of the pier is a fish cleaning area that routinely attracts large numbers of gulls and some Brown Pelicans (*Pelecanus occidentalis*). On the morning of 30 September 2009, a flock of gulls at the proposed sand disposal site included 80 Heermann's (*Larus heermanni*), 75 Western (*L. occidentalis*), and 14 California Gulls (*L. californicus*). On 12 October 2009 I observed seven Brown Pelicans, 55 Heermann's Gulls, 165 Western Gulls, 40 California Gulls, two Ring-billed Gulls (*Larus delawarensis*) , seven Royal Terns (*Thalasseus maximus*), and four Elegant Terns (*Thalasseus elegans*). Various common shorebird species forage in the intratidal zone at this location, including the Willet (*Catoptrophorus semipalmatus*), Marbled Godwit (*Limosa fedoa*), and Sanderling (*Calidris alba*).

Otherwise, bird use of this area will generally be limited to such highly adaptable species as the Rock Pigeon (*Columba livia*), American Crow (*Corvus brachyrhynchos*), and European Starling (*Sturnus vulgaris*).

Figure 4. Proposed sand disposal site at Newport Pier. As shown in this aerial, this location receives considerable human use, at least during some days.

China Cove Sand Disposal Site

This proposed sand disposal site occupies a limited area of approximately 0.3 acre at the southern terminus of Fernleaf Street, where it intersects with Cove Street, in Corona del Mar (Figure 5).

Figure 5. The small China Cove sand disposal site in Corona del Mar.

The China Cove site is a small, sandy beach surrounded by existing residences. The only terrestrial plants present are Highway Iceplant (*Carpobrotus edulis*) and Washington Fan Palm (*Washingtonia filifera*), both non-native invasive species. On 12 October I saw a Western Gull and a Spotted Sandpiper (*Actitis macularia*) at this site, and it is likely that other common bird species such as the Willet and Marbled Godwit forage or roost here on occasion. The site is too small and close to residences to provide habitat for any bird species that is not highly adapted to conspicuous human presence.

Near-shore Sand Disposal Sites A and B

As shown previously, in Figure 3, proposed near-shore sand disposal site A is located in open water between 40th and 52nd Streets and proposed site B is located between 16th Street and 6th Street. These near-shore waters provide potential foraging habitat for limited numbers of such common species as the Surf Scoter (*Melanitta perspicillata*), Western Grebe (*Aechmophorus occidentalis*), and Double-crested Cormorant (*Phalacrocorax auritus*). Various gulls are also often seen roosting in such areas, just past the breakers. The jetties adjacent to the northerly Site A provide foraging and roosting habitat for birds of the rocky shore, including the Black Oystercatcher (*Haematopus bachmani*), Black Turnstone (*Arenaria melanocephala*), and Surfbird (*Aphriza virgata*).

Sensitive Bird Species

This section discusses bird species that occur or potentially occur in areas that could be affected by the proposed project that are endangered or rare, as those terms are used in CEQA and its Guidelines, or that are of current local, regional, or state concern. Legal protection for sensitive species varies widely, from the relatively comprehensive protection extended to listed threatened/endangered species to no legal status at present. The California Department of Fish & Game (CDFG) publishes quarterly its lists of "Special Vascular Plants, Bryophytes, and Lichens" and "Special Animals." The Special Plants list incorporates continually updated information from the California Native Plant Society (CNPS), an independent organization that maintains an online inventory of taxa that its botanists regard as rare, declining, or insufficiently known. In addition, recently published findings and preliminary results of ongoing research provide a basis for consideration of species that are candidates for state and/or federal listing.

Table A lists each sensitive bird species known to occur on the project site or adjacent areas, or that could potentially occur there. Species accounts following the table discuss the range and conservation status of all taxa included in Table A. Additional sensitive wildlife species could conceivably occur on the project site, but such occurrences would be exceptional or limited to the passage of migrants.

Table A
Special Status Bird Species
With Potential To Occur in the Marina Park Project Area

Scientific Name	Common Name	USFWS Status	CDFG Status	Habitat	Potential to Occur
Pelecanus occidentalis californicus	California Brown Pelican	FE (delisting proposed)	CE	Does not nest in local area; non-breeders roost in estuaries and on beaches and breakwaters, and forage in bays and near-shore waters.	Known to forage and rests in the project area.
Rynchops niger	Black Skimmer	–	SSC	Nests on islands with expanses of bare ground; in winter, commonly roosts on beaches well above the tide line or on mud flats in estuaries.	Nests at Upper Newport Bay; likely to forage occasionally in project area. Skimmers forage on small fish and possibly crustacens in ponds, estuaries, bays, and in the nearshore waters, usually within a few miles of nesting sites.
Sternula antillarum browni	California Least Tern	FE	CE	Nests on sparsely vegetated flat substrates, forages in nearby waters.	Nests at Upper Newport Bay and at the mouth of the Santa Ana River; moderate potential to forage occasionally in project area. Least Terns forage on small fish in ponds, estuaries, bays, and in the near-shore waters, usually within 5 miles of nesting sites.
Charadrius alexandrinus nivosus	Western Snowy Plover	FT	SSC	Nests on sandy beaches and shores. Non-breeders forage and roost on sandy beaches and shores, typically using the same areas year after year.	No potential for breeding in the project area; low potential for occurrence by non-breeders. The nearest nesting location is at the mouth of the Santa Ana River. Repeated surveys by local Snowy Plover monitors have identified only one regular winter roost on the Newport Peninsula, 2.0 miles southeast of Newport Pier, on the beach between E and F streets, where 62 plovers were present on 5 October 2009 (Peter Knapp pers. comm.).

FE – Federal Endangered; FT – Federal Threatened
California Department of Fish and Game
CE – California Endangered
SSC – Species of Special Concern, an administrative designation given to vertebrate species that appear to be vulnerable to extinction because of declining populations, limited ranges, and/or continuing threats. Some species may be just starting to decline, while others may have already reached the point where they meet the criteria for listing as a threatened or endangered species.

California Brown Pelican (*Pelecanus occidentalis californicus*)

The California Brown Pelican breeds from the Channel Islands south along Pacific coast of Mexico as far south as Nayarit; also breeds at the Salton Sea. Non-breeders range from southern British Columbia south along Pacific coast to Colima, Mexico. The federal government and State of California listed this large seabird as endangered due to sharp population declines resulting from organochlorine pesticide pollution during the 1960s and 1970s. The U.S. Fish and Wildlife Service proposed delisting the brown pelican in 2008, and if this decision is carried forward the species' populations will be monitored for a decade, from 2010 to 2020, under a post-delisting monitoring plan. The species continues to be listed as endangered by the State.

California Brown Pelicans do not breed in Orange County, but non-breeders occur commonly in estuaries and on beaches and breakwaters; they typically forage in bays and near-shore waters. Brown Pelicans occur regularly in lower Newport Bay, on the beach at Newport Pier, and in the near-shore waters off Balboa Peninsula, including areas that would be affected by the proposed project.

Black Skimmer (*Rynchops niger*)

The Black Skimmer is a California Species of Special Concern, an administrative designation given to vertebrate species that appear to be vulnerable to extinction because of declining populations, limited ranges, and/or continuing threats. Some species may be just starting to decline, while others may have already reached the point where they meet the criteria for listing as a threatened or endangered species. The species is widespread along the coasts of the Americas, and in the West it breeds primarily in coastal southern California and the Salton Sea. The species also breeds very locally in Mexico, from Baja California south to Colima. The winter range extends south to El Salvador and Nicaragua. The greatest threat to the long-term viability of the breeding population is thought to be the apparent shortage of suitable open nesting habitat and its continued loss as a result of erosion or vegetation growth on small islets.

The Black Skimmer is a year-round resident on the coast of Orange County, breeding on islands at Upper Newport Bay, Bolsa Chica, and the Seal Beach National Wildlife Refuge. The species forages mainly at dawn, dusk, and at night, and foraging skimmers could potentially forage in the near-shore waters proposed as sand disposal sites, but would be unlikely to do so regularly or intensively.

California Least Tern (*Sternula antillarum browni*)

This small tern, listed as endangered by the U.S. Fish and Wildlife Service and the State of California, breeds on sandy beaches and other barren habitats along the Pacific coast from Monterey County south to southern Baja California. The birds prey upon small fish in ponds, bays, and near-shore waters, typically within five miles of their nesting colonies. California Least Terns typically are present in southern California from mid-April through August; they winter on the Pacific coast of southern Mexico. Declines in populations of this species have been related to loss of suitable nesting habitat because of human recreational

uses, and the concentration of their remaining colonies in small areas, rather than scattered widely as in historical times, has made them vulnerable to predation by a variety of predators.

The California Least Tern colonies closest to the project area are located at the mouth of the Santa Ana River, approximately 1.3 miles northwest of the proposed Near-shore Sand Disposal site A, and on a man-made island near the head of Upper Newport Bay, approximately 4.0 miles northeast of the project area. Birds from these colonies could potentially forage in the near-shore waters proposed as sand disposal sites, but would be unlikely to do so regularly or intensively.

Western Snowy Plover (*Charadrius alexandrinus nivosus*)

This Pacific coast population of this small shorebird is federally listed as threatened, and it is also a California Species of Special Concern. The current Pacific coast breeding population extends from Washington south to southern Baja California Sur. These birds winter mainly in along the coast from southern Washington to Central America. Western Snowy Plovers nest on beaches, many of which have been subjected to habitat degradation caused by human disturbance, urban development, introduced Beachgrass (*Ammophila arenaria*), and expanding predator populations. Frequent mechanical raking to remove garbage, kelp, and other debris makes beaches unsuitable for nesting and probably harms food resources for wintering plovers by eliminating substrates supporting flies and other invertebrates important in the birds' diets. Humans and dogs also disturb roosting birds on heavily used recreational beaches, but effects of such disturbance have not been quantified.

The Western Snowy Plover is a year-round resident of Orange County beaches, although it is found only locally during both breeding and non-breeding periods. There is an influx of birds from outside of the county during the fall and winter months, typically from other coastal areas in southern California. The nearest consistent nesting location for the western snowy plover is at the mouth of the Santa Ana River, approximately 2.4 miles northwest of the proposed sand disposal site at the base of the Newport Pier. The only consistent Snowy Plover winter roosting site on the Balboa Peninsula is located in the vicinity of E and F Streets, approximately 2.0 miles southeast of Newport Pier (Peter Knapp pers. comm.); see Figure 6 on the next page. In 2009, a Snowy Plover nest at this location produced three young (Peter Knapp pers. comm.). Mr. Knapp recorded 62 snowy plovers at this location on 5 October 2009. I found only 18 there on 12 October 2009, but this was at mid-day, when most of the birds were out foraging on the local beach rather than roosting in a large group. The Snowy Plover is unlikely to occur in any areas proposed for project impacts except as a rare transient.

Figure 6. The only consistent roosting location for the Western Snowy Plover known on the Balboa Peninsula is in the vicinity of E and F Streets, approximately two miles southeast of the areas that would be affected by proposed sand removal and sand disposal activities. In 2009 one plover nest was also found in this area.

Impacts

Thresholds of Significance

Consistent with Appendix G of the CEQA Guidelines, an impact is considered significant (before considering offsetting mitigation measures) if the lead agency determines that project implementation would result in one or more of the following:

- Substantial adverse effects, either directly or through habitat modifications, on any species identified as being a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFG or USFWS;
- Substantial adverse effects on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by CDFG or USFWS;
- Substantial adverse effects on federally protected aquatic resources as defined by Section 404 of the Clean Water Act through direct removal, filling, hydrological interruption, or other means;
- Substantial interference with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or interference with the use of native wildlife nursery sites;
- A conflict with any local policy or ordinance protecting biological resources, such as a tree preservation policy or ordinance; or
- A conflict with the provisions of an adopted HCP, NCCP, or other approved local, regional, or state HCP.

Anticipated Effects of Proposed Sand Disposal Actions

The proposed project involves (a) trucking sand from the proposed Marina Park site to existing beaches near the base of the Newport Pier and at China Cove, and (b) barging sand from the proposed Marina Park site to one or two near-shore sand disposal sites.

The proposed onshore sand disposal sites are heavily impacted by human activities in the existing condition and do not provide nesting habitat for birds of any kind. California Brown Pelicans occur commonly at the Newport Pier sand disposal site, but this adaptable species routinely interacts with humans in this area and would not be significantly impacted by the proposed actions. The federally threatened Western Snowy Plover is known to roost on open, sandy beaches, including some beaches on the Balboa Peninsula that are used by moderate numbers of people; it is possible that this species could occur as a non-breeder at the Newport Pier sand disposal site. There was a recent case in which a vehicle ran over and killed a non-breeding Western Snowy Plover on a southern California beach, and the resource agencies have expressed concern that any sick plovers may be unable to move out of the way of heavy equipment working on a beach. If sand disposal actions were to result in death, injury, or harassment of one or more roosting Western Snowy Plovers this would constitute a potential violation of the federal Endangered Species Act, a potentially significant impact. Recommended Mitigation Measure No. 1 addresses this potential project effect.

The near-shore disposal sites could possibly serve as foraging habitat for small numbers of California Brown Pelicans, Black Skimmers, or California Least Terns, but these sites are not known or expected to be of particular value to these or other foraging seabird species. Furthermore, only a small number of barge-loads would be needed to dispose of the sand at the near-shore sites, so any adverse effects that might occur, such as a temporary increase in turbidity, would have no significant impacts to foraging pelicans, skimmers, terns, or other bird species.

MITIGATION

The original DEIR for the Marina Park project identified several mitigation measures that will be required to address potential adverse effects that could result from aspects of project implementation previously addressed. This report recommends the addition of one more mitigation measure to ensure against any potentially significant effects resulting from the proposed sand deposition activities.

Recommended Measure No. 1: Monitoring of Sand Deposition at Newport Pier

To ensure against any potential adverse effects upon the federally threatened Western Snowy Plover, a qualified biological monitor shall inspect the sand deposition site at Newport Pier immediately before sand is disposed of at this site and throughout the period when sand is being deposited on the beach. The monitor shall have experience surveying for Snowy Plovers and shall be approved by the U.S. Fish & Wildlife Service prior to conducting this work. The monitor shall have the authority to immediately stop work if any Snowy Plovers that may be present show signs of stress or disturbance as a result of the

sand disposal work. Work shall only resume with the monitor's approval. Implementation of this recommended mitigation measure would ensure that sand disposal actions would not entail any potentially significant impacts upon the Western Snowy Plover.

Level of Significance After Mitigation

With implementation of the recommended mitigation measure, the proposed sand disposal actions would result in no potentially significant impacts upon any bird species.

Conclusion

Thank you for the opportunity to provide this CEQA analysis. If you have any questions or wish to discuss any issues, please call me at 562-477-2181; you may send e-mail to robb@hamiltonbiologicalcom.

Sincerely,

Robert A. Hamilton
President, Hamilton Biological, Inc.
http://hamiltonbiological.com

Appendix 2

Example of Monitoring Options for Beach and Near-Shore Sand Disposal (Source: Moffatt & Nichol, Everest International, and SAIC (2008)

Project Phase	Timing/Duration	Type of Monitoring
Pre-project Baseline	1 month prior	Beach profiles
	1/2 month prior, 3 times per week over 14 days	Surf conditions
	If project is scheduled between March 1 and September 15 (2 to 3 weeks prior to construction before and/or during predicted grunion run closest to project initiation)	Grunion habitat suitability (if surf zone or berm placement) Grunion monitoring (if habitat suitable)
	30 days prior to project start	Nearshore sensitive resources; e.g., Pismo clam beds, giant kelp beds, surfgrass beds, nearshore reefs with sea fans, sea palms, and/or feather boa kelp (if nearshore placement)
During Construction	Daily during construction	Turbidity
	If scheduled between March 1 and September 15 (monitoring frequency dictated by tides and lunar cycle, approximately every 2 weeks during spawning season)	Grunion monitoring
	If scheduled between March 1 and September 15	Endangered and Threatened Species Western snowy plover (daily monitoring if receiver site is within critical habitat and/or adjacent to known breeding sites); California least tern (daily monitoring of turbidity outside surf zone if receiver site is adjacent to known breeding sites)
Post-Construction	Immediately after completion	Beach profiles
	1 month after, 3 times per week over 14 days	Surf conditions
	90 days after construction	Nearshore sensitive resources (if appropriate)
Post-Project	Over 1 year following construction; surveys at 6 months after; and 1 year after	Beach profiles
	Either 9 months or 1 year following construction, depending on biologist, with concurrence of permitting agencies	Nearshore sensitive resources (if appropriate)
		Beach Sand Gradation Nearshore Sand Gradation (conduct grain size sampling and testing over time at

D.4 - DRAFT DELINEATON OF WATERS AND WETLANDS

Draft
Delineation of Jurisdictional Waters and Wetlands
Marina Park Project, City of Newport Beach
Orange County, California

Newport Beach OES USGS 7.5-minute Topographic Quadrangle
Section 33, Township 6 South, Range 10 West

Prepared for:

City of Newport Beach
Planning Department
3300 Newport Boulevard
Newport Beach, California 92658-8915

Contact: Rosalinh Ung, Associate Planner

Prepared by:

Paul Mead, Esq., Regulatory Project Manager
Michael Brandman Associates
621 E. Carnegie Drive, Suite 100
San Bernardino, California 92408
909.884.2255

Contact: Mike Hulihan, Project Manager

Surveys Conducted By: Paul Mead
Surveys Conducted: July 10, 2009

Report Date: August 17, 2009

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APPENDICES

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LIST OF EXHIBITS

SECTION 1: SUMMARY

Applicant Name:
City of Newport Beach
Planning Department
3300 Newport Boulevard
Newport Beach, CA 92658-8915
Contact: Rosalinh Ung, Associate Planner

Agent Name:
Michael Brandman Associates (MBA)
621 E. Carnegie Drive, Suite 100
San Bernardino, CA 92408
Phone: 909.884.2255
Contact: Paul Mead, Senior Regulatory Specialist
Email: pmead@brandman.com

1.1 - Introduction

At the request of City of Newport Beach, Michael Brandman Associates (MBA) conducted a Jurisdictional Determination of the 10-acrew Marine Park Property, hereafter referred to as the project site or site, located in the City of Newport Beach, Orange County, California.

The project site was evaluated to determine the presence and extent of jurisdictional of waters of the U.S. and waters of the State. [1] These waters include all rivers, streams, lakes, ponds and coastal resources including wetlands.

Wetlands were evaluated using criteria established by the United States Army Corps of Engineers (USACE) (See Section 2). Similarly, because the project is located within the coastal zone (as defined by the California Coastal Act), the project was also evaluated using criteria employed by the California Coastal Commission. [2]

This report delineates waters and wetlands, and also provides a summary of ancillary information needed for processing regulatory permits with the USACE and other Regulatory Agencies.

Regulatory permits are required for potential impacts to Waters of U.S. as set forth in Section 404 of the Clean Water Act (CWA) and/or Section 10 of the Rivers and Harbors Act of 1899. Impacts to waters of the U.S. will also require CWA section 401 permitting with the Regional Water Quality Control Board (RWQCB). Similarly, because the project lies within the coastal zone, authorization will also be required from the California Coastal Commission (CCC).

The project site is not subject to California Department of Fish & Game Jurisdiction under Fish & Game Code section 1600-1616 because the project site does not contain lake or streambed.

Impacts and proposed mitigation will be assessed in a separate mitigation plan and are not provided in this report.

[1] Waters if the U.S are a s defined by the Section 404 of the Clean Water Act, and Section 10 of the Rivers and Harbors Act of 1899.
[2] The California Coast Act is set forth in Public Resources Code, Section 30000-30900.

1.2 - Project Description

The proposed Marina Park Project (Project) includes the Multi-Purpose Building at the Balboa Center Complex (0.23 acres), Sailing Program Building at the Balboa Center Complex (0.25 acres), the Girl Scout House (0.16 acre), marina services building (0.03 acre), parking areas (1.47 acres), park (4.89 acres), beach (1.75 acres), and marina basin (1.67 acres).

1.3 - Summary of Jurisdictional Findings

The project site includes 0.76 acre of Newport Bay, which are navigable waters of the U.S. and subject to federal jurisdiction under Section 10 of the Rivers and Harbors Act of 1899. The on-site portions of the Bay are also subject to RWQCB jurisdiction under Section 401 of the Clean Water Act.

As defined using USACE criteria, no adjacent wetlands were determined to be found on the project site because the project site does not exhibit a dominance of hydrophytic vegetation, or hydric (anaerobic) soils.

Applying the California Coastal Commission one-parameter rule, the maximum potential extent of wetlands is defined as lands "covered periodically or permanently with shallow water . . . ". [3] The delineation determined this area of periodic inundation to extend from the lowest (historically) observed water level (LOWL) to the high tide line (HTL), including 1.81 acres. However, because this area contains neither hydric soils nor a dominance of hydrophytic vegetation it does not possess sufficient wetland indicia to be determined a CCC wetland. [4] Furthermore, the project site lacks sufficient functional capacity to be considered a wetland (or even degraded wetlands). No California Coastal Commission wetlands are present at the site.

Because no wetlands are present (even in a degraded state), proposed activities in the surveyed area should not result in loss of wetland functional capacity in the Lower Newport Bay.

A comprehensive discussion of the rationale for these jurisdictional determinations is provided in section 4 of this document.

[3]Public Resources Code, Section 30121; defining wetlands
[4] "CCC Wetland Delineation Rationale - Method", John Dixon, Senior Ecologist, California Coastal Commission.

SECTION 2: JURISDICTIONAL METHODOLOGY

2.1 - Methodology Statement

This Jurisdictional Delineation (JD) was conducted in accordance with regulations set forth in 33 CFR part 328 and the USACE guidance documents referenced below:

- USACE Wetlands Research Program Technical Report Y-87-1 (on-line edition), *Wetlands Delineation Manual*, Environmental Laboratory, 1987 (Wetland Manual).
- USACE *Guidelines for Jurisdictional Determinations for Waters of the United States in the Arid Southwe*st, 2001 (Arid Southwest Guidelines).
- USACE *Minimum Standards for Acceptance of Preliminary Wetlands Delineations*, November 30, 2001 (Minimum Standards).
- USACE *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region*, December 2006 (Arid West Supplement).
- USACE *Jurisdictional Determination Form Instructional Guidebook*, May 30, 2007 (JD Form Guidebook).
- USACE *A Field Guide to the Identification of the Ordinary Hiugh Water Mark (OHWM) in the Arid West Region of the Western United States*, August 2008 (Delineation Manual).
- California Coastal Commission, *Procedural Guidance for the Review of Wetlands Projects in California's Coastal Zone*, June 15, 1994.

2.2 - Pre-Survey Investigation

Prior to the field visit, a 200-scale (1 inch = 200 feet) aerial photograph of the Site was procured and compared with the Newport Beach, California, U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle map to identify drainage features within the survey area as indicated from topographic changes or visible drainage patterns. The National Wetland Inventory was also reviewed to determine whether any wetland areas had been documented within the vicinity of the site. The United States Department of Agriculture (USDA) Soil Survey Map was reviewed to identify the soil series that occur on the Site.

Tidal data was accessed from the National Oceanic and Atmospheric Administration (NOAA). These tidal data include information gathered over a 19-year period as set forth in the last National Tidal Datum Epoch (1983-2001).These data were combined with topographic data provided by the City of

Newport Beach and aerial imagery to create contours for the referenced tidal datum in the surveyed area.

Because topographic data was based on 1-foot intervals, slope intercept calculations were used to extrapolate and approximate tidal datum contours to sub-foot accuracy.

Three transects were established for field evaluation and confirmation. These transects located in the west, central and eastern segments of the beach portion of the project site. (See transects in Exhibit 8) These transects were used to create cross-section reference graphics (See Exhibits 9 and 10)

2.3 - Field Investigation

A field investigation was performed by MBA Senior Regulatory Project Manager, Paul Mead, on July 10, 2009. Materials used included, transect markers, a 50-meter tape measure, shovel, and Munsell color chart. Data was collected using a Magellan Explorist 210 GPS with an accuracy of ±12 feet.

Three transects were evaluated (See Exhibit 8). Seven soil pits were excavated along transect 3 to a minimum depth of 18". These pits were used to evaluate soil profiles for indications of anaerobic and redoximorphic (hydric) conditions in the subsurface.

The survey was conducted on foot. Potential jurisdictional features were systematically inspected to record existing conditions and to determine the jurisdictional limits. The site was carefully assessed for surface flow (inundation) indicators (presence of hydrophytic vegetation, staining, cracked soil, ponding, etc). The apparent flow regimes and corresponding hydrogeomorphic features were subsequently identified. The lateral extent of USACE jurisdiction was measured at the Ordinary High Watermark (OHWM) or at the Mean High Water (MHW) mark.

Wetland areas were assessed to the outer reach of the applicable vegetative community (the Sandy Beach), or if hydrophytes were present then to the transition to upland species. Depressions/ponded areas where water appears likely to collect were also evaluated. Ponded features are assessed to the natural topographical rim of the depressional feature or to the outer drip mark of vegetative layer (whichever was greater). Features previously indicated on aerial photographs (dark/saturated areas, associated riparian vegetation, etc.) were field verified during the site visit. Similarly, USDA/Natural Resources Conservation Service (NRCS) soils records for Orange County were also field confirmed. Plant species for each vegetative community were identified and given an indicator status as prescribed in the *National List of Vascular Plant Species that Occur in Wetlands* (1996). As needed, data collected were recorded on wetland data forms and evaluated using the 2006 USACE Arid West Regional Guidance.

CCC jurisdiction includes coastal wetlands, as defined in the Coastal Act, and corresponding regulations and guidance. Based on Coastal Commission criteria, the maximum extent of California

Coastal Commission wetlands may extend from the lowest observed water level (Historical) to the high tide line. This area is also shown in the corresponding transect data.

Measurements were entered into Geographical Information System (GIS) Arcview software to identify the location and dimensions of jurisdictional areas. The Arcview application was then used to compute federal and state jurisdiction in acres. Acreage computations were verified using a 200-scale aerial photograph and field data.

SECTION 3: ENVIRONMENTAL SETTING

3.1 - Location of the Property

The project is located in the southwestern portion of the City of Newport Beach in Orange County, California (see Exhibits 1-3). The project site encompasses approximately 10.45 acres and is located between Balboa Boulevard and Newport Bay and between 15th Street on the east and 19th Street on the west. Major arterial access is provided along Balboa Boulevard with secondary access to the project site along 15th Street, 18th Street, and 19th Street. Regional freeway access to the site is provided by the Costa Mesa Freeway (SR 55) and the San Joaquin Hills Transportation Corridor (SR 73).

The central point of the property was determined to have a latitude/longitude corresponding to 33.608503°N and - -117.923843°W (Decimal degrees)

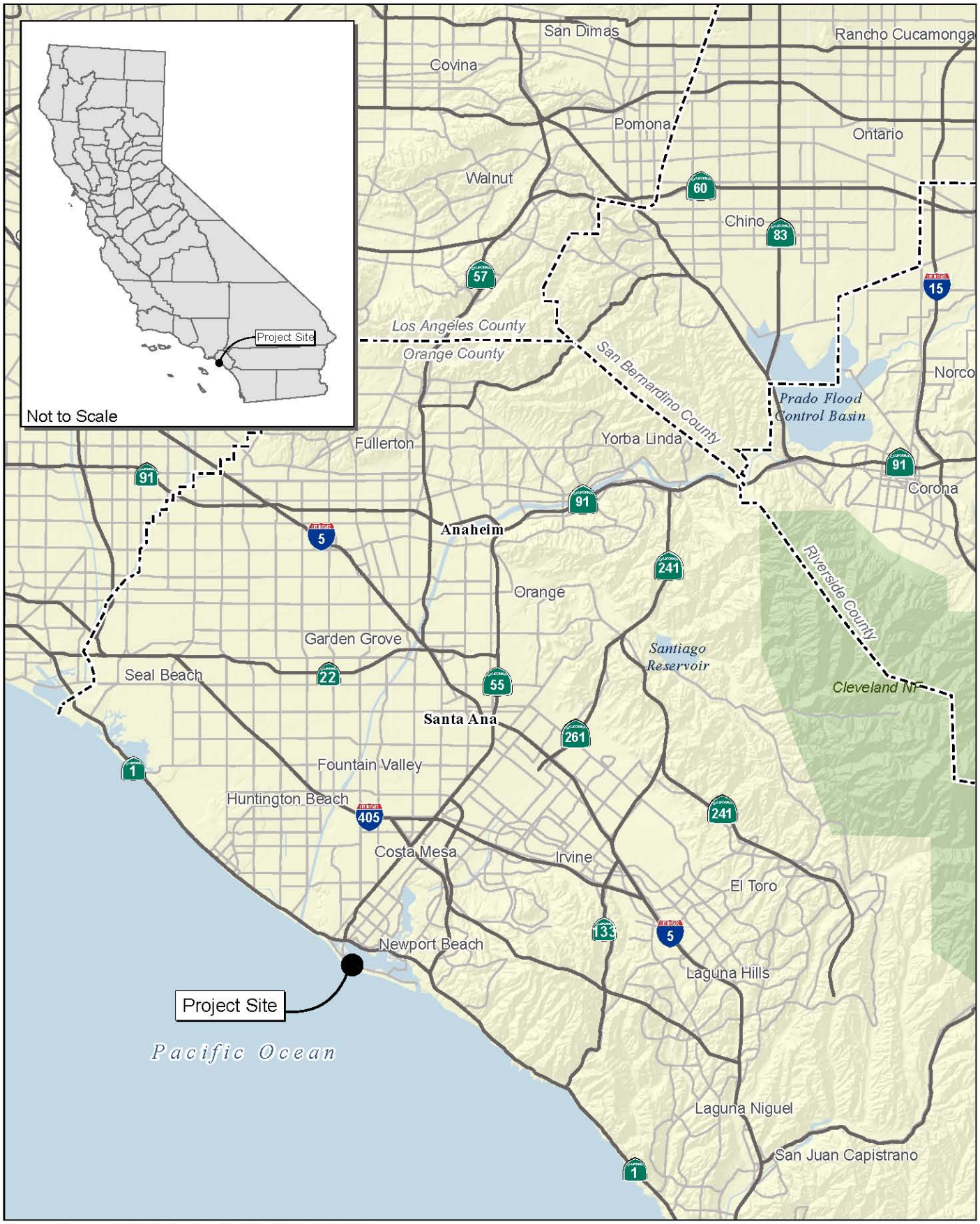
3.1.1 - Directions to the Property

From Downtown Los Angeles, take the Santa Ana Freeway (5) south to the Newport/Costa Mesa Freeway (55). Then southwest to Newport Boulevard, which begins at the southern terminus of the 55. Follow Newport Blvd. past Pacific Coast Highway (1) onto the Newport Peninsula until it transitions to West Balboa Boulevard (Balboa). Continue on Balboa until 18th Street. Turn left on 18th street and proceed to the parking lot adjacent to the project site.

3.2 - Land Uses

3.2.1 - Land Uses

The project site encompasses approximately 10.45 acres and presently supports the Marina Park mobile home park (3.83 acres), Girl Scout House (0.34 acre), community center (0.50 acre), Las Arenas Park (1.50 acres), the Southern California Edison parcel (0.14 acre), Veteran's Park (0.47 acre), alley, sidewalk, and 19th Street restroom (0.97 acre), beach (2.16 acres), and the portion of the project site within Newport Bay (0.54 acre).



Source: Census 2000 Data, The CaSIL, MBA GIS 2008.

NORTH

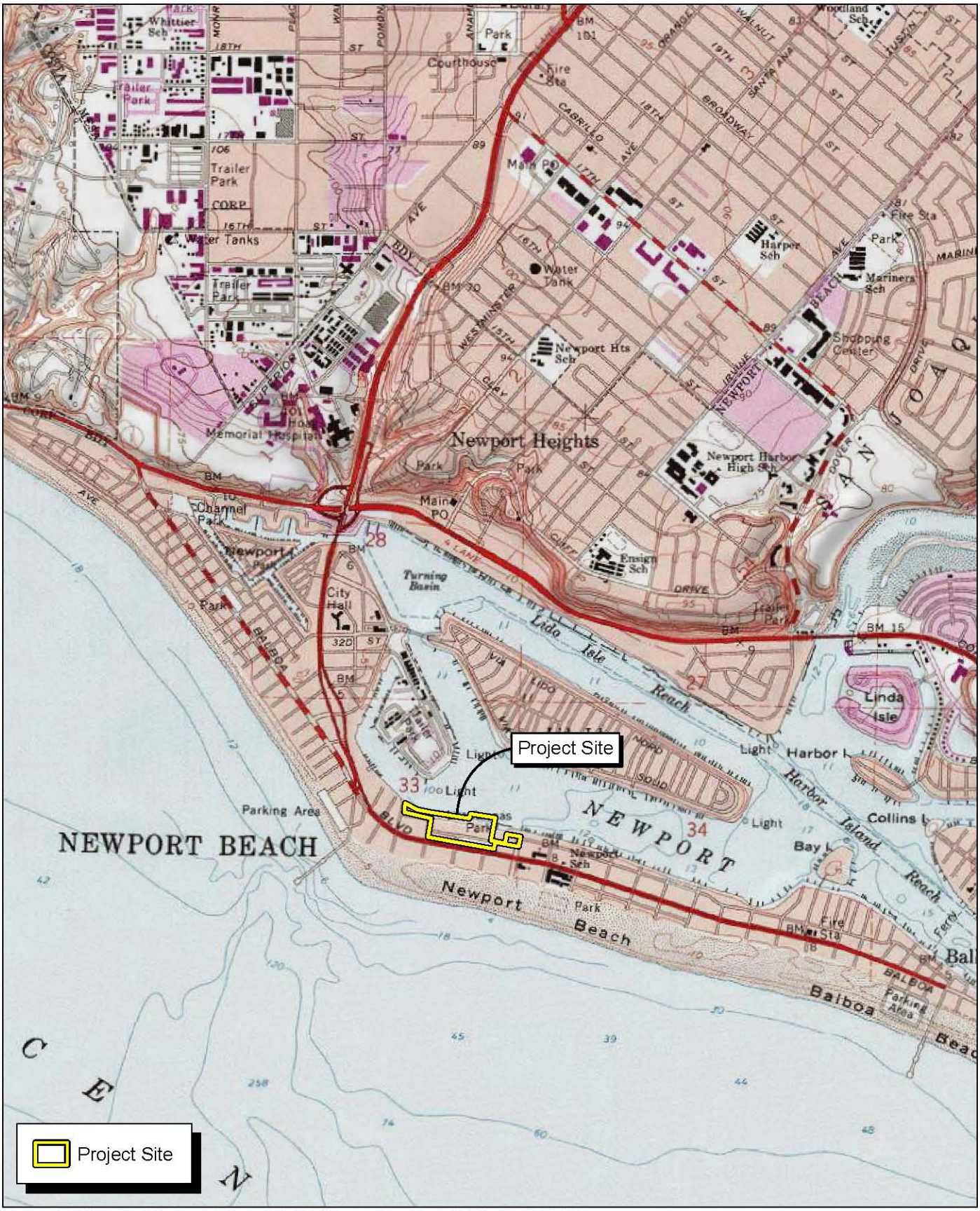
5 2.5 0 5 Miles

Michael Brandman Associates

Exhibit 1
Regional Location Map

00640022 • 07/2009 | 1_regional.mxd

CITY OF NEWPORT BEACH • MARINA PARK PROJECT
DELINEATION OF JURISDICTIONAL WATERS AND WETLANDS



Source: TOPO! USGS Newport Beach (1981) & Newport Beach OES (1981) 7.5' DRG's.

NORTH

2,000 1,000 0 2,000 Feet

Michael Brandman Associates

Exhibit 2
Local Vicinity Map
Topographic Base

Source: Google Earth Pro.

NORTH

500 250 0 500

Feet

Michael Brandman Associates

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Exhibit 3
Local Vicinity Map
Aerial Base

CITY OF NEWPORT BEACH • MARINA PARK PROJECT
DELINEATION OF JURISDICTIONAL WATERS AND WETLANDS

3.2.2 - Surrounding Land-Uses

The property is bound in the north by Newport Harbor. Marinas are located immediately to the east and west of the surveyed area. The site is bound in the west Balboa Blvd. and existing residential development to the south.

3.2.3 - Activities Relating to Interstate or Foreign Commerce

In addition to being a navigable water, Newport Bay (including on-site portions) is used for recreation (swimming) including likely use by interstate or foreign travelers. Onsite resources (Newport Bay) may also be used for fishing with potential sale in interstate or foreign commerce. However, the land is not currently used for industry, agriculture or other like activities operating in interstate or foreign commerce.

3.3 - Topography

The Project Site has varied topography with an elevation ranging from approximately -2.35 Feet below Mean lower Low Water (MLLW) to approximately 10 feet above MLLW. The public beach slopes at an approximate grade of 7.2 degrees to the water.

3.4 - Hydrology

3.4.1 - Watershed Description

The project is located within the Newport Bay Watershed (USGS cataloging unit 18070204) and Newport Bay hydrologic sub-area (801.14).

Table 1: Water Shed Data - Size

Hydrologic Information	Description	Acres	Sq. Mi	% of Watershed
Hydrologic Area	Lower Santa Ana River	309,681	483.9	NA
Hydrologic (Cataloging) Unit	Newport Bay (18070204)	100,343	156.8	100
Hydrologic Sub-Area	Newport Bay (801.14)	1,610	2.5	1.6%

3.4.2 - Beneficial Uses

The Basin Plan for the Santa Ana Regional Water Quality Control Board (SARWQCB) has established the beneficial uses surface waters in the area. For purposes of noting beneficial uses, the project site is located within the "Lower Newport Bay" (See Table 2, below).

Table 2: Beneficial Uses

Beneficial Uses	Upper Newport Bay	Lower Newport Bay	Pacific Ocean
Municipal/Domestic Water Supply (MUN)	--	--	--
Agricultural Supply AGR)	--	--	--
Industrial Service Supply (IND)	--	--	Yes
Industrial Process Supply (PROC)	--	--	--
Groundwater Recharge (GWR)	--	--	--
Navigation (NAV)	--	Yes	Yes
Hydropower Generation (POW)	--	--	--
Water Contact Recreation (REC 1)	Yes	Yes	Yes
Non-Contact Water Recreation (REC 2)	Yes	Yes	Yes
Commercial and Sports fishing (COMM)	--	Yes	Yes
Warm Freshwater Habitat (WARM)	Yes	--	--
Limited Warm Freshwater Habitat (LWRM)	--	--	--
Cold Freshwater Habitat (COLD)	--	--	--
Preservation of Biological Habitats of Special Significance (BIOL)	Yes	--	--
Wildlife Habitat (WILD)	Yes	Yes	Yes
Rare, Threatened or Endangered Species (RARE)	Yes	Yes	Yes
Spawning, Reproduction, and Development (SPWN)	Yes	Yes	Yes
Marine Habitat (MAR)	Yes	Yes	Yes
Shellfish Harvesting (SHEL)	Yes	Yes	Yes
Estuarine Habitat (EST)	Yes	--	--
* NOTE: Reach of the Santa Ana River extends from Prado Dam to Mission Blvd. in Riverside..			

3.4.3 - Flood Data

The Federal Emergency Management Agency (FEMA) has an assigned flood Zone classification for the project area. The bulk of landward side of the property is within FEMA zone "X500". The "X500" designation establishes that the annual probability of flooding is between 0.2 percent and one percent (100-500 year flood). A small portion of the seaward side of the property is within FEMA designated zone "A", which corresponds to an annual; probability of flooding of one percent or greater (≥100 year flood) (See Exhibit 5).

3.4.4 - Seasonal Climate Variation

NRCS has recorded and compiled climate data for Newport Beach Harbor (CA 6175).

Table 3: Climate Data

Climate Parameter	Value	Units	Month (Year)
Temperature: Average Daily Minimum	48.0	ºF	December
Temperature: Average Daily Maximum	72.9	ºF	August/Sept
Rainfall: Lowest Monthly Average	0.02	Inches	July
Rainfall: Peak Monthly Average	2.60	Inches	January
Precipitation: Lowest Annual (1935-2002)	2.95	Inches	(1989)
Precipitation: Highest Annual (1935-2002)	25.55	Inches	(1983)
Precipitation: Average Annual (1935-2002)	11.72	Inches	NA
Snowfall: Peak Monthly Average	0.0	Inches	NA

Growing Season Dates tables suggest a 50 percent probability that the growing season will last year round (365 Days 28ºF or higher)(WETS Station Data).

Precipitation is typically greatest in the winter months January through March, reaching peak average rainfall in January (2.60 inches). Average precipitation is lowest in July (0.02 inch). Snowfall is not typical in the area. The WETS tables indicate average annual precipitation for the area is 11.72 inches, with 0.0 inches of snowfall. Total average precipitation may vary greatly between drought and flood years. Between the survey years 1935 and 2002, annual precipitation was lowest in 1989 (2.95 inches) and highest in 1983 (25.55) (WETS Station Data). The highest recorded historical high tide corresponds to a storm surge in 1983.

Precipitation within the Chino (Split) hydrologic sub-area (801.21) indicates annual precipitation within the watershed at 18.2 inches.

3.4.5 - Field Conditions at time of Field Investigation

The field survey was conducted on July 10, 2009 from 05:40 am to 09:00 am. The weather was generally warm with a morning marina layer proving slight cloud cover throughout most of the survey. Sunrise was at 5:50 am, sunset at 8:48 pm.

The field survey was scheduled to coincide with the low-low tide for the area at 05:57 am. Low tide corresponded to a height of -0.2 feet measured from MLLW. Higher High tide for the survey date was +5.1 measured from MLLW at 11:20 pm.

During the survey periods, the Palmer Drought Severity Index (PDSI) indicated severe drought conditions in the area, crop moisture index for the time period was at -2.43.

3.5 - Soils

The Project Site does not contain named soil series. A soil series is a group of soils with similar profiles. These profiles include major horizons with similar thickness, arrangement, and other important characteristics. The USDA soil survey identifies the soil profiles in the area as "Beaches" and "Water" (United States Department of Agriculture Soil Survey, Orange County Area, California 2008) (Exhibit 6).

Sandy Beaches includes unvegetated coastal area comprised exclusively of sand. Sandy Beach can be subject to high-energy wave action. However, within protected bays such as Newport Harbor, beaches are sheltered resulting in low energy wave action. Sandy beaches are areas of extremely rapid percolation with virtually no run-off.

3.6 - Biological Resources

3.6.1 - Biological Resources Surveys and Reports

Two biological assessments have been prepared fro this project and are cited/referenced in this report.

- Coastal Resources Management, October 15, 2008 (Revised 02/25/2009); *Marine Biological Impact Assessment, Marina Park Project, Newport Beach, California*.

- Michael Brandman Associates (MBA), November 18, 2008; *Terrestrial Biological Resources Assessment, Marina Park Project, Newport Beach, Orange County CA.*

3.6.2 - Plant Communities / Land Use Acreages / Flora / Fauna

The *Terrestrial Biological Resources Assessment* for the project (MBA 2008), establishes the following Plant community/land uses for the project site (See Table 4, below).

With respect to the delineation of jurisdictional waters and wetlands, the biological assessment of the Sandy Beach and Intertidal Coastal Wetlands are most pertinent.

Sandy Beach and Intertidal Area

While most of the shoreline of Newport Harbor is dredged for boat slips and lined with bulkheads, a few sandy beaches are scattered throughout the harbor. The sandy beach area on the project site provides the public with recreation opportunities and also provides habitat for marine-associated wildlife.

The high intertidal portion of the city-maintained public beach support few if any marine organisms in the sediments because of the infrequent tidal exposure and periodic cleaning and grooming. This higher elevation however, is resting habitat for seabirds (gulls and pelicans). The middle and low intertidal zones provide more consistent tidal inundation and supports burrowing species of invertebrates (primarily clams, crustaceans, and polychaete worms). These organisms attract

shorebirds to the mid and low intertidal elevations of the beach that utilize these invertebrates as their food source (Coastal Resources Management, Inc. at page 15, citing Quammen 1980).

A hedge of ornamental shrubs is also present, separating the public beach from the adjoining mobile home park. A line of ornamental palm trees also lines the sidewalk that borders the public beach. These individual trees and landscaped areas of ornamental vegetation are not associated with any native vegetation and provide only limited habitat value, primarily as cover and perching areas for birds and common terrestrial wildlife that are normally found in and associated with developed areas. The scattered ornamental landscaping covers a total of approximately 0.7-acre of non-native vegetation. (MBA, 2008)

Table 4: Plant Community/Land Use Acreages

Plant Community	Approximate Area (acres)
Disturbed/Developed	7.05
Ornamental	0.70
Turf	0.40
Sandy Beach	1.00
Intertidal Coastal Wetland (CCC)	1.20
Total	10.35

The plant communities discussed above provide marginally suitable foraging habitat for a few local terrestrial wildlife species, all of which are urban-adapted, and no sensitive wildlife or suitable habitat for sensitive wildlife are present on the site. (MBA, 2008)

Invertebrates observed within the project site include sand fleas (insects in the family *Ceratopogonidae*), beached moon jellies (*Aurelia aurita*), and sand crabs (*Emerita talpoida*). Barnacles (*Balanus glandula*) were also found in the mid to high intertidal area attached to piers, docks, walls and bay mussel (*Mytilus galloprovinvialis*).

The project site contains shallow marine habitat that provides potentially suitable habitat for several marine fish. Fish were observed breaching the water during the early morning hours, 20 or more feet offshore from the observed low tide. Positive identification was elusive, but the size and color suggest white seapearch (*Phanerodon furcatus*, Silver, 32 cm in length). The Marine Resource Assessment for the project asserts that over 75 species of fish are known to be present in Newport Bay (CRM, 2009).

The site lacks suitable habitat for amphibians or reptile species and none were observed during the filed survey.

During the delineation several avian species were noted, these included small feeding groups of marbled godwit (*limosa fedoa*) in the low inter-tidal area, and also California gull (*Larus californicus*) and mallard duck (*Anas platyrhynchos*). In addition to those species observed during the delineation, the terrestrial biological assessment of the area also recorded the presence of several urban-adapted avian species, including the house sparrow (*Passer domesticus*), house finch (*Carpodacus mexicanus*), American crow (*Corvus brachyrhynchos*), mourning dove (*Zenaida macroura*). The snowy egret (*Egretta thula*), brown pelican (*Pelecanus occidentalis*), and gull-billed tern (*Sterna nilotica*) may also occur on site (MBA, 2008).

Other than domesticated cats and dogs, no mammals were observed during the field survey. Opossums may also be expected to occur on the site (MBA, 2008)

3.6.3 - Evaluation of Special Status Species (Terrestrial)

The following federally or state listed species are reported to occur within the vicinity of the site and were evaluated for their potential to occur on-site: light-footed clapper rail (*Rallus longirostris levipes*), California least tern (*Sternula antillarum browni*), coastal California gnatcatcher (*Polioptila californica californica*), western snowy plover (*Charadrius alexandrinus nivosus*), southern tarplant (*Centromadia parryi ssp. Australis*), Coulter's saltbush (*Atriplex coulteri*), Davidson's saltscale (*Atriplex serenana var. davidsonii*), estuary seablite (*Suaeda esteroa*), mud nama (*Nama stenocarpum*), chaparral sand-verbena (*Abronia villosa var. aurita*) (MBA, 2008).

None of the listed terrestrial special status species were found or are expected to occur on site. (MBA, 2008)

3.6.4 - Evaluation of Special Status Species (Marine)

The following federally or state listed species are reported to occur within the vicinity of the site and were evaluated for their potential to occur on Site. (CRM, 2009)

Table 5: Special Status Species Potentially Present in the Marina Park Project Area

Scientific Name	Common Name	USFWS Status or NMFS Status	CDFG Status	Habitat	Potential to Occur
Plants					
Phyllospadix torreyi	surfgrass	Habitat Area of Particular Concern (HAPC)) for Fisheries Management Plan (FMP) Species under the Magnuson-Stevens Fishery Conservation and Management Act	–	Nearshore rocky intertidal/rocky subtidal	none
Zostera marina	eelgrass	Habitat Area of Particular Concern (HAPC) for Fisheries Management Plan (FMP) Species under the Magnuson-Stevens Fishery Conservation and Management Act	–	Bays, harbors, shallow near shore water sediments	Not observed at the project in 2003, 2004, 2005, and 2008
Fishes					
Eucyclogobius newberryi	Tidewater goby	FE	–	Shallow marine waters, lower reaches of streams	No potential, extirpated from Orange County
Leuresthes tenuis	California grunion	–	–	Spawns on local open coastal beaches	No potential to occur at the project site
Hypsypops rubicundus	California garibaldi	Protected under commercial and sport fish regulations	California State Marine Fish , Assembly Bill AB77, 1995	Subtidal rocky reef habitat; resident and territorial species in shallow subtidal rocky habitats	None in West Newport Bay; does occur near the harbor entrance channel in rocky subtidal environment
Paralichthys californicus	California halibut	–	–	Shallow coastal waters, open ocean	High potential

Table 5: Special Status Species Potentially Present in the Marina Park Project Area (Cont.)

Scientific Name	Common Name	USFWS Status or NMFS Status	CDFG Status	Habitat	Potential to Occur
Reptiles					
Chelonia mydas	Green turtle	FE	–	Near shore and open ocean waters	Rare visitor but unlikely to occur in the waters of West Newport Bay
Eretmochelys imbricata	Hawksbill sea turtle	FE	–	Near shore and open ocean waters	Rare visitor but unlikely to occur in the waters of West Newport Bay
Birds					
Pelecanus occidentalis	Brown pelican	FE; proposed for delisting	CE	Bays, estuaries, near shore waters	Forages and rests in project area
Sterna antillarum browni	California least tern	FE	CE	Nests on sparsely vegetated flat substrates, forages in nearby waters	Moderate potential. Forages in the waters of Newport Bay; Nesting habitat occurs in Upper Newport Bay and nearby at the Santa Ana River mouth; least terns will forage on juvenile baitfish in the nearshore waters, Newport Harbor and Upper Bay channels, usually within 5 mi of nesting sites .
Charadrius alexandrinus nivosus	Western snowy plover	FT	SSC	Nests on sandy beaches and shores	No nesting habitat present onsite, no potential for individuals to occur on site
Mammals					

Table 5: Special Status Species Potentially Present in the Marina Park Project Area (Cont.)

Scientific Name	Common Name	USFWS Status or NMFS Status	CDFG Status	Habitat	Potential to Occur
Zalophus californianus	California sea lion	MMA		Near shore and open ocean waters, occasionally enters bays/harbors	Moderate-to-high potential for individuals to be present in West Newport Bay. Locally becoming more abundant in Newport Harbor, and in the vicinity of vessels moored offshore of Lido Peninsula
Phoca vitulina	Harbor seal	MMA		Nearshore and open ocean, occasionally enters bays/harbors	Low potential to be present in West Newport Bay.
Tursiops truncatus	Bottlenose dolphin	MMA		Nearshore and open ocean waters	Rare visitor to Newport Harbor
Eschrichtius robustus	California gray whale	MMA		Near shore and open ocean waters	Rare visitor to Newport Harbor

FE – Federal Endangered; FT – Federal Threatened; MMA – Protected under Marine Mammal Act
California Department of Fish and Game
CE – California Endangered
SSC – Species of Special Concern
HAPC are subsets of Essential Fish Habitat (EFH) which are rare, particularly susceptible to human induced degradation, especially ecologically important, or located in an environmentally stressed area. Designated HAPC are not afforded any additional regulatory protection under the Magnuson Stevens Fishery Conservation and Management Act (MSA); however, federally permitted projects with potential adverse impacts to HAPC will be more carefully scrutinized during the consultation process (NMFS 2008a)

3.6.5 - Listed Species / Critical Habitat – Moderate to High Potential

As part of the USACE permitting program, Nationwide Permit General Condition 17 (GC 17) requires compliance with the Endangered Species Act (ESA). Pursuant to the ESA and GC 17, no activity is authorized under any Nationwide Permit (NWP) which is likely to jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified (under the ESA), or which will destroy or adversely modify the critical habitat of such species. Similarly no activity is authorized under any NWP which "may affect" a listed species or critical habitat, unless a Section 7 consultation addressing the effects of the proposed activity has been completed.

The following Federally listed species have moderate to high potential to occur on the project site:

- California brown pelican (*Pelecanus occidentalis*);
- California least tern (*Sterna antillarum browni*); and
- California halibut (*Paralichthys californicus*).

In addition, the California sea lion (*Zalophus californianus*) is protected under the Marine Mammal Act (MMA) and may require special consideration during permitting.

The proposed project is not anticipated to detrimentally impact, or otherwise result in the direct or indirect take of listed species (See CRC, *Marine Biological Impact Assessment*, 2009).

No other federally or state listed species are present on the site, and no suitable habitat for any federally or state listed species is present on the site, therefore, no further action is required pursuant to the ESA or the California Endangered Species Act (CESA). Additionally, no species or habitat protected under the Orange County Coastal-Central Natural Community Conservation Planning/Habitat Conservation Plan (NCCP/HCP) are present on the site, therefore, no further action is required pursuant to the NCCP/HCP. Therefore, implementation of the proposed project will not have significant impacts on any special status or sensitive plant communities, special status or sensitive plants, or special status or sensitive species. (MBA, 2008)

3.7 - Historical Properties

An assessment of onsite historic properties is required by USACE in administering the Section 404 permitting program. According to General Condition No. 12 of the USACE Nationwide Permit Program, pursuant to the federal National Historic Preservation Act (NHPA), the presence of significant cultural resources must be determined prior to submittal of the Section 404 application.

3.8 - Coastal Zone Evaluation

The project site is within the coastal zone as defined by the California Coastal Act. As such, a Coastal Zone Management Act consistency determination is required.

As of July 1, 2008 the Local Coastal Plan (LCP) for the South Coast Area, identified an "effectively certified" Land Use Plan (LUP) for the City of Newport Beach.

3.9 - Environmental Documentation

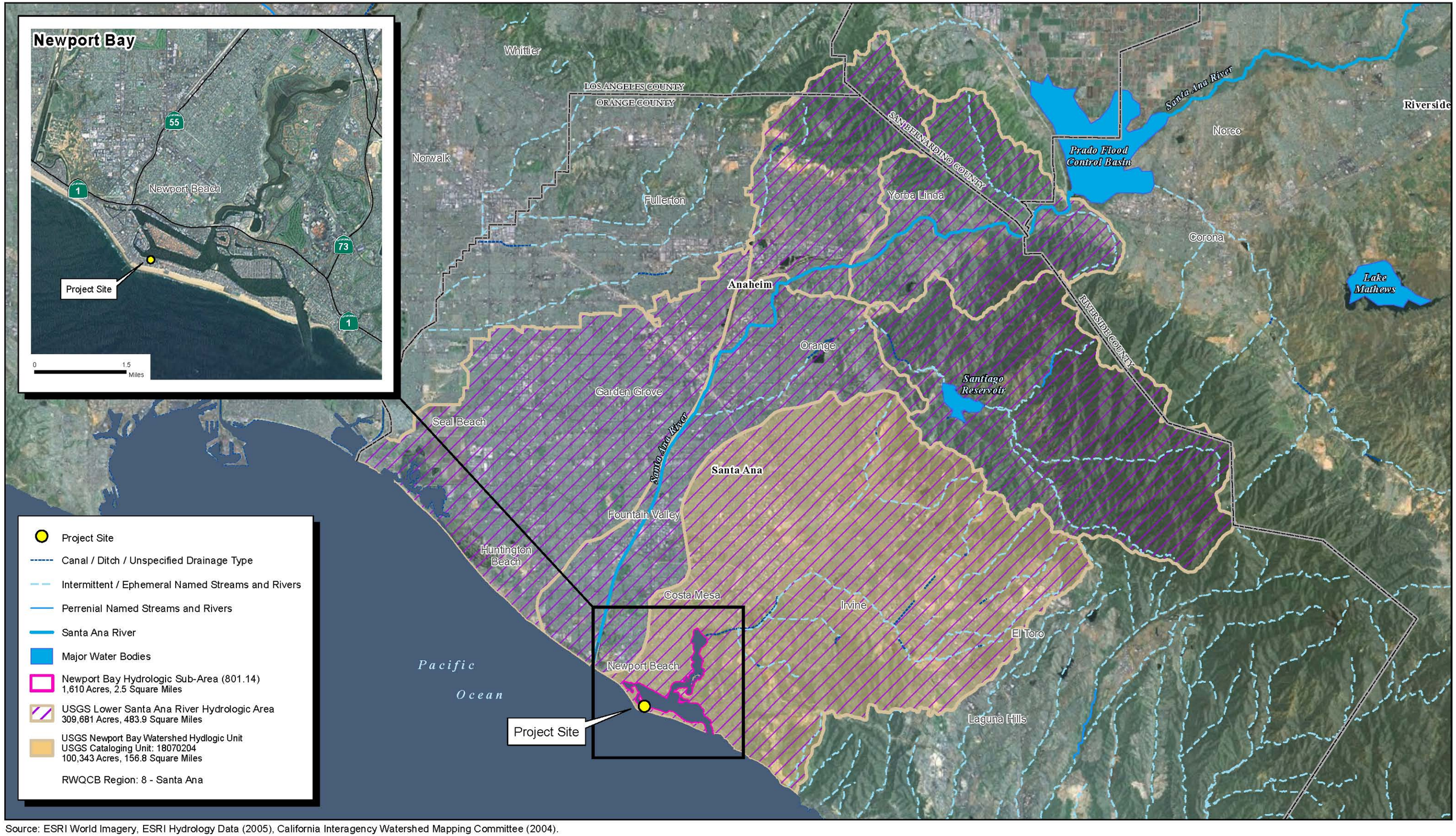
Pursuant to the California Environmental Quality Act (CEQA) a Draft Environmental Impact Report (DEIR) will be prepared for the Property and proposed project.

The DEIR will evaluate the projects environmental effects/impacts. Final CEQA documents are required before water quality certification (CWA Section 401) will be authorized. Similarly, a

California Department of Fish and Game (CDFG) Section 1602 streambed alteration agreement will not be considered finalized until final CEQA documents have been issued.

3.10 - USACE District Considerations – Los Angeles District

None of the USACE Los Angeles District regional conditions applies to the subject property.



Source: ESRI World Imagery, ESRI Hydrology Data (2005), California Interagency Watershed Mapping Committee (2004).

NORTH

3.5 1.75 0 3.5
Miles

Michael Brandman Associates

00640022 • 07/2009 | 4_Watershed_Drainage.mxd

Exhibit 4
Watershed / Drainage Map

CITY OF NEWPORT BEACH • MARINA PARK PROJECT
DELINEATION OF JURISDICTIONAL WATERS AND WETLANDS

Source: Google Earth Pro & FEMA NFHL Data (February 18, 2009).

NORTH

1,000 500 0 1,000 Feet

Michael Brandman Associates

00640022 • 07/2009 | 5_Flood.mxd

Exhibit 5
FEMA Flood Map

CITY OF NEWPORT BEACH • MARINA PARK PROJECT
DELINEATION OF JURISDICTIONAL WATERS AND WETLANDS

Source: Google Earth Pro & USDA NRCS ca678 soils (2008).

NORTH

200 100 0 200

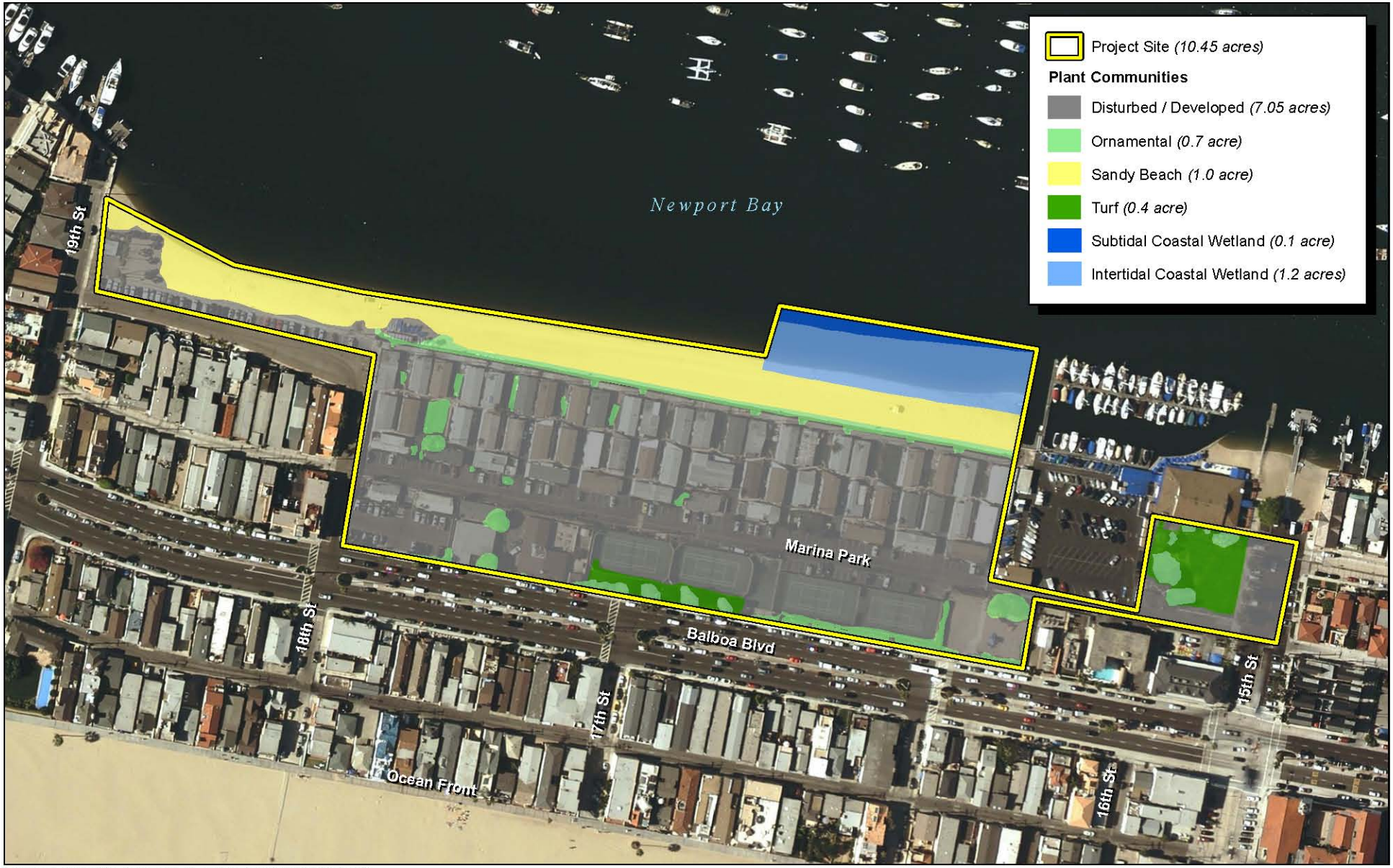
Feet

Michael Brandman Associates

00640022 • 07/2009 | 6_Soils. mxd

Exhibit 6
USDA Soils Map

CITY OF NEWPORT BEACH • MARINA PARK PROJECT
DELINEATION OF JURISDICTIONAL WATERS AND WETLANDS



Source: Google Earth Pro & MBA Field Survey (2009).

NORTH

200 100 0 200

Feet

Michael Brandman Associates

00640022 • 07/2009 | 7_Veg. mxd

Exhibit 7
Plant Communities Map

CITY OF NEWPORT BEACH • MARINA PARK PROJECT
DELINEATION OF JURISDICTIONAL WATERS AND WETLANDS

SECTION 4: JURISDICTIONAL DELINEATION RESULTS

The following section provides a detailed discussion of jurisdictional and non-jurisdictional areas on the property, incorporating findings related to vegetative communities, topography, soils, hydrology, and wetlands for each of the geomorphic features.

4.1 - Summary of Jurisdictional Areas

The only potential jurisdictional feature(s) on the project site are the Lower Newport Bay and the adjacent Beach, which was evaluated for presence of potential wetlands.

Table 6: Summary of Jurisdictional Areas

Hydrogeomorphic Feature	USACE Jurisdiction		California Coastal Commission Jurisdiction		
	Waters of U.S. acres (linear feet)	Adjacent Wetland Waters (acres)	Deep Water acres	Maximum Extent of Periodic Innundation (acres) HTL / HOWL*	Wetlands based on Presence of Hydrophytes or Hydric Soils (acre)
Lower Newport Bay, Beach (from 16th to 19th Street)	0.76 (1,378)	NA	0.22	1.81 / 2.20	0.0
* HTL = High Tide Line, HOWL = Highest Observed Water Line (See discussion below)					

4.2 - USACE Jurisdictional Determination - Rationale

A detailed discussion of the rationale for supporting the jurisdictional determination for each type of geomorphic feature found on the site is as follows.

4.2.1 - Lower Newport Bay

The term "Waters of the United States" as it applies to the jurisdictional limits of authority of the USACE under the Clean Water Act, is defined in 33 CFR Part 328.3(a). These regulations establish CWA jurisdiction of "all waters which are currently used, or were used in the past, or may be susceptible to use in interstate commerce, including all waters which are subject to the ebb and flow of the tide". [5] Typically, waters which meet the regulatory definition for "navigability" (33 CFR 329) have sufficient commerce nexus to be considered waters of the U.S., thus the presence of recreational craft and access to the ocean or any navigable bodies of water linking other states or

[5] 33 CFR 328.3(a)(1).

nations is sufficient to establish jurisdiction. [6] A determination of navigability, once made, applies laterally over the entire surface of the waterbody. [7]

The project site includes portions of the Lower Newport Bay extending from 16th Street westward to 19th Street. The onsite reach is located at the junction of the Rhine Channel, Lido Peninsula Channel, and Mid Channel in the southwestern portion of bay. Existing Marinas are located immediately to the east and west of the project site. Similarly, boat moorings can be observed in the mid-channel from the project site. Boat traffic is regularly seen in the waters extending outward from the project site, and the beach is sometimes used as a launching point for small recreational watercraft such as kayaks, canoes, and catamaran. Furthermore, the Lower Newport Bay is directly connected to the Pacific Ocean, and regularly facilitates recreational boating/sailing to other states and foreign waters such as the territorial waters of Mexico.

In its Basin Plan, the SARWQCB has identified beneficial uses for the Lower Newport Bay, which also support a nexus to interstate commerce. These uses include, navigability, water contact recreation, commercial and sports fishing, marine habitat and shellfish harvesting.

Because the waters are susceptible to the ebb and flow of tide, are navigable and support interstate commerce, CWA jurisdiction will apply to the Lower Newport Bay.

In bays and estuaries the shoreward limit of federal jurisdiction extends to the mean high tidal waters (MHW). [8] Following procedures set-forth in section 2 of this determination, the MHW was delineated across the entire reach of the bay extending from 16th to 19th Street (See Exhibit 8). The MHW for the area was determined to be 4.67 feet, above MLLW. The Mean Range of Tide (MN), (the difference in height between mean high water (4.67') and mean low water (0.915')) was calculated to be 3.755 feet.

4.2.2 - Intertidal Wetlands – Field Analysis

The USACE will assert federal jurisdiction over wetlands, which are adjacent to other (non-wetland) waters of the United States.

The portion of bay within the project site includes 0.76 (1,378 linear feet) of Jurisdictional waters of the U.S. [9] Wetlands are defined as, "*those areas that are inundated or saturated by surface of groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swaps marshes, bogs and similar areas.*" [10]

The USACE definition is often referred to as a "three parameter definition". Accordingly, the project site was surveyed for the presence of wetland hydrology, vegetation (hydrophytes), and hydric soils.

[6] 33 CFR 329.6(a) & (b).
[7] 33 CFR 329.4
[8] 33 CFR 329.12(b)
[9] 33 CFR 328.3(a)(7)
[10] 33 CFR 328.3(b)

Wetland Hydrology:

Generally, wetland hydrology is assumed to extend to the line encompassing spring high tides and other high tides that occur with periodic frequency but not including storm surges in which there is a departure from normal or predicted reach of the tide caused by strong winds and storm surges. [11] Often the area of inundation is clearly demarcated by deposition of fine shell, debris soil or scum, seaweed and vegetation. However, on beaches, which are regularly maintained, raked and cleaned, this inundation may be more difficult to demarcate, particularly given variation in tidal reach over an annual period.

During the field visit, the area of tidal influence could visually be determined by a change in the compaction of the beach sand. This line corresponded to a point 5.96 feet above MLLW. Suggesting that the area of frequent inundation extends beyond the mean high water line. However, given the disturbed nature of beach, which is susceptible to regular maintenance it is assumed that the area of periodic tidal influence (inter-tidal zone) extends to the high tide line (HTL).

HTL data is not provided in the available data from NOAA, a precise HTL is over the National Tidal Datum Epoch is not known. However, (predicted) tidal data for the bay was reviewed over the three-month period extending from July 1 to October 13. During this period, HTL is anticipated to extend to 7.2 feet above MLLW.

Though wetland hydrology is assumed to extend to the HTL, it is probably of insufficient frequency and duration to facilitate a change in soil morphology and establishment of wetland plant communities within the inter-tidal area. Similarly, the grade of the beach (Slope = 7.2) results in rapid retreat of water within the great diurnal range, further limiting duration of inundation (or saturation).

Barnacles and mussels, which are typically found in the mid to high inter-tidal area, were observed on the existing sea-wall/marina adjacent to the project site. During the field visit, these invertebrates did not appear to extend beyond the mean high water line (+4.67'). These data suggest that the frequency and duration of inundation is progressively diminished beyond the MHW.

Vegetation (Hydrophytes):

Hydrophytic vegetation is present when the plant community is dominated by species that can tolerate prolonged inundation or soil saturation during the growing season. [12] Hydrophytes typically include obligates, and facultative species (FACW, FAC) which may include many coastal halophytes.

In the Newport area, the growing season extends year round. However, during the time of the survey no vegetation was observed within the surveyed area. Particularly within the HTL, the absence of vegetation may be due to insufficient periodic inundation (see above), but may also result from the disturbed beach habitat which is periodically raked and cleaned of debris.

[11] 33 CFR 328.3(d): Defining High Tide Line.
[12] USACE, Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region, December 2006. at page 12.

Hydrophytes are not present in the surveyed area.

Soils (Hydric Soil):

At lower low tide (0.2 feet below MLLW) on the survey date, soil was examined along the length of the easternmost survey transect (Transect 3). Soil pits were excavated at the MLW, the mean tide level (MTL), the mean high water (MHW), the mean higher high water (MHHW), the field observed high water mark, the high tide line, and the highest historically observed water level (HOWL). All pits were dug to a minimum depth of 18 inches. The soil profiles of all pits were similar in that they revealed a consistent sandy matrix with no evidence of organic streaking, muck, peat, discoloration or any redoximorphic features that might indicate the presence of hydric soil. The only inter-pit variation was the depth to saturation, which expectedly became deeper moving up the slope. Saturated soil/sand was not observed in monitoring pits excavated above the field observed high water mark.

Hydric soils are not present in the surveyed area.

4.2.3 - Intertidal Wetlands – USACE Jurisdictional Determination

Based on the field analysis, the surveyed area may provide sufficient wetland hydrology within some portions of the intertidal area extending to the HTL; however, inundation is of insufficient frequency and duration to facilitate the formation of hydric soils and/or establishment of hydrophytic vegetative communities. As such, the area does not meet the USACE regulatory standard for wetlands.

4.3 - CCC Wetland Determination - Rationale

Wetlands in California's Coastal Zone are regulated under the California Coastal Act (CCA) of 1976, which is administered by the CCC. Section 30121 of the CCA defines "wetlands" as "*lands within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, and fens.*"

Subsequently, the term wetland was further and more explicitly defined in Title 14 California Code of Regulations Section 13577(b):

> *. . . land where the water table is at, near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes, and shall also include those types of wetlands where vegetation is lacking and soil is poorly developed or absent as a result of frequent and drastic fluctuations of surface water levels, wave action, water flow, turbidity or high concentrations of salts or other substances in the substrate. Such wetlands can be recognized by the presence of surface water or saturated soil at some time during each year and their location within, or adjacent to, vegetated wetland or deepwater habitats.* [13]

[13] Guidance: "CCC Wetland Delineation Rationale – Method" at section 2.1

On the basis of the above definitions, the CCC considers a wetland to be any area that is sufficiently wet for a long enough period of time to promote the formation of hydric soils or a predominance of hydrophytic vegetation. Title 14 CCR Section 13577 designates the following features to define the upper limits of wetlands: [14]

1. The boundary between land with predominantly hydrophytic cover and land with predominantly mesophytic or xerophytic cover;
2. The boundary between soil that is predominantly hydric and soil that is predominantly non hydric; or
3. In the case of wetlands without vegetation or soil, the boundary between land that is flooded or saturated at some time each year and land that is not.

The Coastal Commission requires wetland identification and delineation to be based on the definition within its regulation. A one parameter approach must be followed to identify and delineate the geographic extent of wetland boundaries. The parameter used can be either (1) conditions that promote the formation of hydric soils, which are generally demonstrated by field indicators of hydric soils, or (2) the presence of a predominance of hydrophytes. [15]

Based on CCC regulations and guidance, the presence of wetlands within the surveyed area is not dispositive because neither hydric soils nor hydrophytic vegetation are present on site, suggesting that the period of inundation is insufficient to form indicia of wetland conditions. Survey results were as follow: .

Vegetation (Hydrophytes):

As set forth in section 4.2.2 above, the surveyed area does not support a dominance of hydrophytic vegetation.

Soils (Hydric Soil):

As set forth in section 4.2.2 above, no hydric soils were determined to be present in the surveyed area.

Wetland Hydrology: (Shallow Water - Area of Periodic/Permanent Innundation)

Coastal Commission Wetlands may occur in areas that are periodically or permanently covered with shallow water. In most cases, the extent of (periodic/permanent) “shallow water” will define the maximum extent of the area of potential wetlands. According to CCC guidance the demarcation between “shallow water” and “deep-water habitat” is the “the lowest historic tide recorded on the nearest available tidal benchmark established by the U.S. National Ocean Survey” (Lowest Observed Water Level, LOWL). However the guidance does not define the upper limit of shallow water. [16]

[14] Guidance: “CCC Wetland Delineation Rationale – Method” at section 2.1
[15] Guidance: “CCC Wetland Delineation Rationale – Method” at section 2.2
[16] Generally see; California Coastal Commission (06/15/1994): *Procedural Guidance for the review of Wetland Projects in California’s Coastal Zone*; Appendix A: Statewide Interpretive Guidelines for Wetlands and Other Wet Environmental Sensitive Habitat.

At a maximum, the upper limit of shallow water may extend to the highest (historically) observed water level (HOWL, 7.67 feet above MLLW on 01/28/1983). However, this tidal point may represent influence (storm surge) from extreme storm events and not reflect a meaningful periodic value. As such, the high tide line provides a closer approximation of the boundary between land that is flooded or saturated at some time each year and land that is not.

Based on these data, the maximum potential extent of CCC inter-tidal wetlands extends from the Lowest observed water level (-2.35 feet) and the highest observed water level (7.67 feet) encompassing 2.2 acres within the project area. However, applying the HTL as the upper limit of periodic inundation, the project site includes only 1.81 acres of shallow water.

The project site also includes 0.22-acre of deep-water below the LOWL. (Exhibits 8, 9, and 10 provide graphical representation of both USACE and CCC jurisdictional areas.)

Function and Value of Surveyed Area:

Functions of wetlands can be defined broadly as all processes and manifestations of processes that occur in wetlands. [17] Most functions fall into three broad categories including (1) hydrologic, (2) biogeochemical, and (3) maintenance of habitat food webs. These functions can also be related to certain defined societal values. These functions and values are set forth in Table 7 (below) which also denotes whether indicators of wetland function are present on site. [18]

Table 7: Functions and Values of Wetlands

Function	Effects	Societal Value	Indicator	Indicator Present?
Hydrologic				
Short-term surface waer storage	Reduced downstream flood peaks	Reduced damage from floodwaters	Presence of floodplain along river corridor (or Estuarine area)	No
Long term surface water storage	Maintenance of base flows, seasonal flow distribution	Maintenance of fish Habitat during dry periods	Topographic relief on floodplain (or estuarine area)	No
Maintenance of high water table	Maintenance of hydrophytic community	Maintenance of biodiversity	Presence of Hydrophytes	No
Biogeochemical				
Transformation, cycling of elements	Maintenance of nutrient stocks within wetland	Wood production	Tree growth	No

[17] National Research Council, Committee on Characterization of Wetlands (1995), *Wetlands Characteristics and Boundaries*.
[18] Table 6 is adapted from: National Research Council, Committee on Characterization of Wetlands (1995), *Wetlands Characteristics and Boundaries*. See Page 28 Table 2.2.

Table 7: Function and Values of Wetlands (Continued)

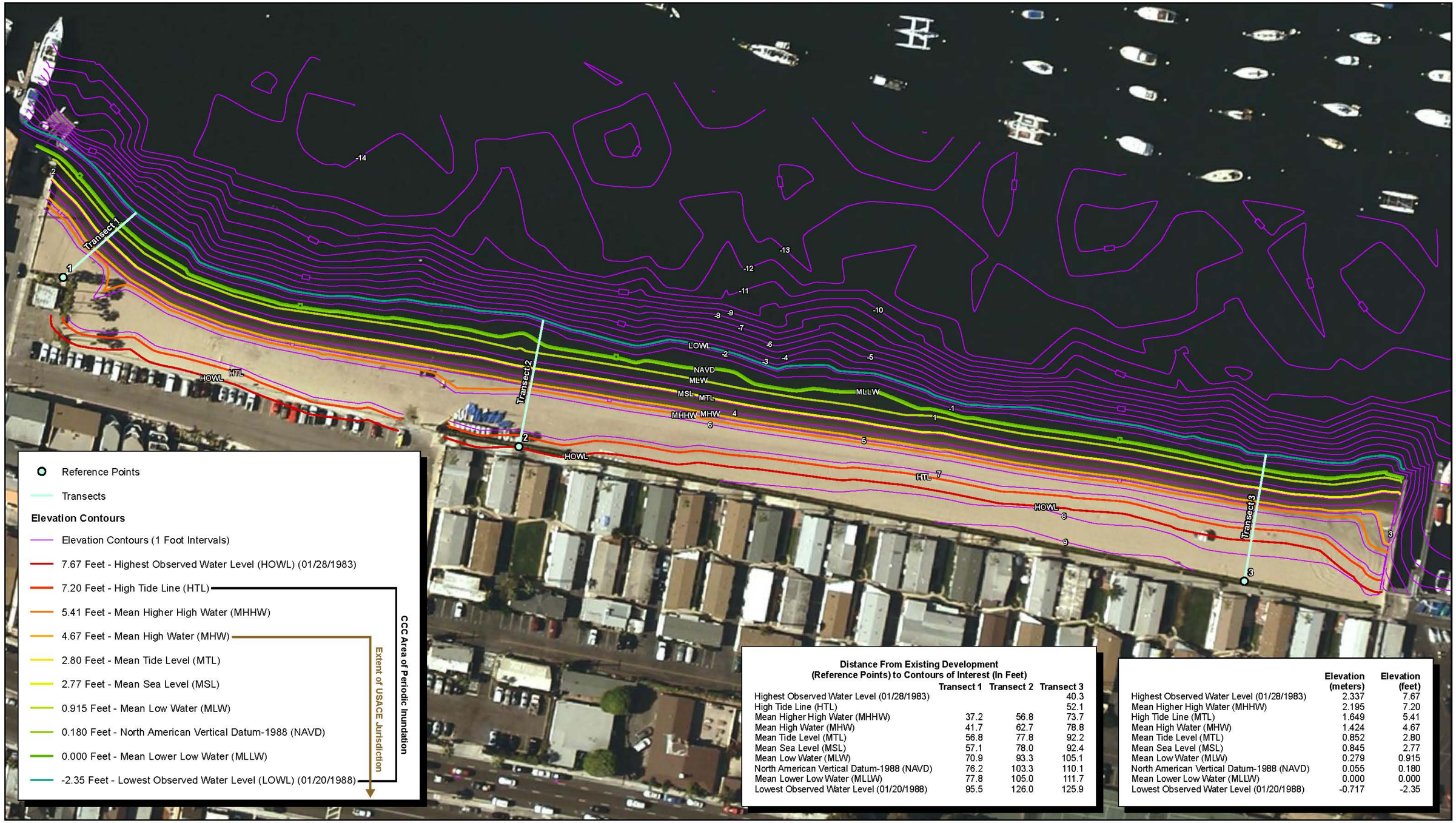
Function	Effects	Societal Value	Indicator	Indicator Present?
Biogeochemical				
Retentions, removal of dissolved substances	Reduced transport of nutrients downstream	Maintenance of water quality	Nutrient outflow lower than inflow	No
Accumulation of peat	Retention of nutrients. Metals, other substances	Maintenance of water quality	Increase in depth of peat	No
Accumulation of inorganic sediments	Retention of sediments, some nutrients	Maintenance of water quality	Increase in depth of sediment	No
Habitat and Food Web Support				
Maintenance of characteristic plant communities	Food, nesting, cover for animals	Support for furbearers, waterfowl	Mature wetland vegetation	No
Maintenance of characteristic energy flow	Support for populations of vertebrates	Mainenance of biodiversity	High diversity of vertebrates.	No

For projects conducted in the Coastal Zone maintaining the functional capacity of wetlands means maintaining the same level and number of species, biological productivity and maintain the same relative size and number of habitats. [19] the Coastal commission defines “marginal wetlands” as resources that may be less important because of their location (eg. small isolated areas) reduced species diversity, or reduced habitat complexity. A marginal wetland may or may not qualify as a “degraded wetland” (as per Coastal Act Section 30411). However even degraded or marginal wetlands may be of special significance if they do provide important function and values such as providing unique or rare habitat for threatened or endangered species.

However, as reflected in Table 7 (above) the surveyed area does not presently provide any indicia of either hydrologic, biogeochemical or habitat and food web support typically associated with wetlands. Furthermore, the surveyed are does not provide unique wetland resources upon which federal/state listed species may depend. As such the site does not presently provide even the limited functional capacity associated with a marginal or degraded wetland.

[19]California Coastal Commission (06/15/1994): *Procedural Guidance for the review of Wetland Projects in California’s Coastal Zone*; Appendix A: Statewide Interpretive Guidelines for Wetlands and Other Wet Environmental Sensitive Habitat. At Section VI (page 25)

Because no wetlands are present (even in a degraded state), proposed activities in the surveyed area should not result in loss of wetland functional capacity in the Lower Newport Bay.



Distance From Existing Development (Reference Points) to Contours of Interest (In Feet)

	Transect 1	Transect 2	Transect 3
Highest Observed Water Level (01/28/1983)			40.3
High Tide Line (HTL)			52.1
Mean Higher High Water (MHHW)	37.2	56.8	73.7
Mean High Water (MHW)	41.7	62.7	78.8
Mean Tide Level (MTL)	56.8	77.8	92.2
Mean Sea Level (MSL)	57.1	78.0	92.4
Mean Low Water (MLW)	70.9	93.3	105.1
North American Vertical Datum-1988 (NAVD)	76.2	103.3	110.1
Mean Lower Low Water (MLLW)	77.8	105.0	111.7
Lowest Observed Water Level (01/20/1988)	95.5	126.0	125.9

	Elevation (meters)	Elevation (feet)
Highest Observed Water Level (01/28/1983)	2.337	7.67
Mean Higher High Water (MHHW)	2.195	7.20
High Tide Line (MTL)	1.649	5.41
Mean High Water (MHW)	1.424	4.67
Mean Tide Level (MTL)	0.852	2.80
Mean Sea Level (MSL)	0.845	2.77
Mean Low Water (MLW)	0.279	0.915
North American Vertical Datum-1988 (NAVD)	0.055	0.180
Mean Lower Low Water (MLLW)	0.000	0.000
Lowest Observed Water Level (01/20/1988)	-0.717	-2.35

Source: Google Earth Pro, NOAA Tides and Currents Datum (2009), MBA GIS (2009).

NORTH

90 45 0 90 Feet

Michael Brandman Associates

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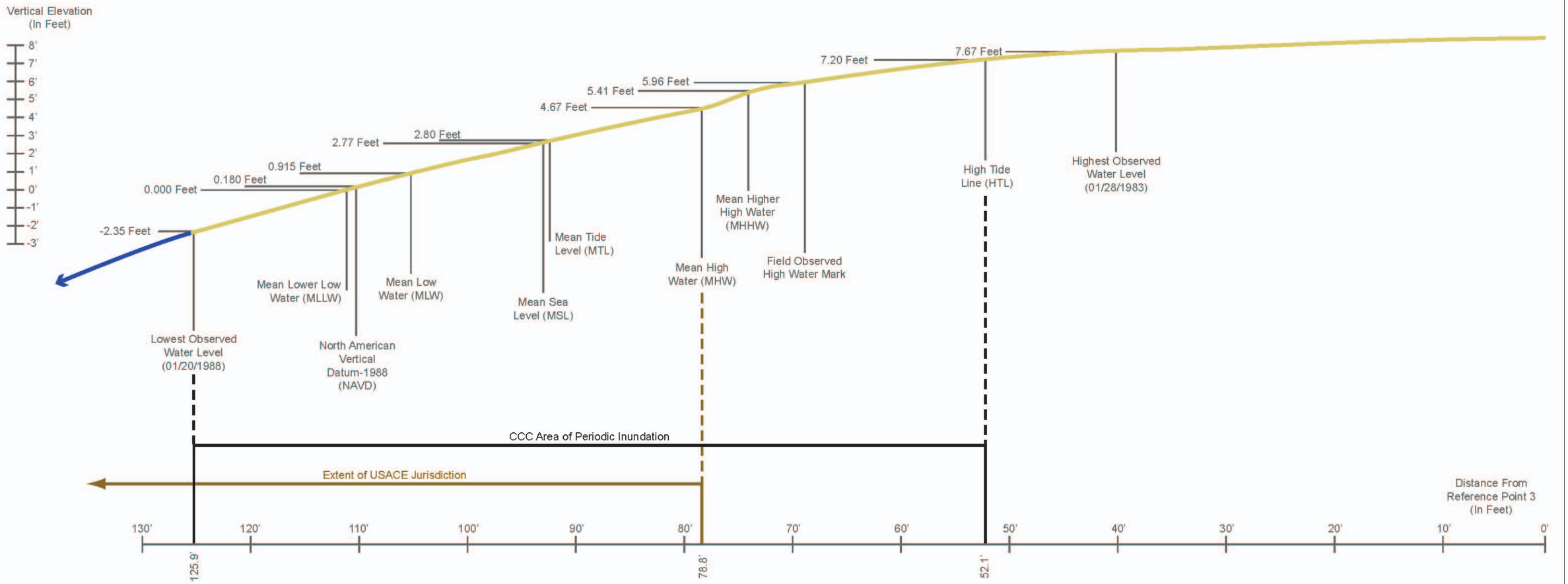
Exhibit 8
Jurisdictional Determinations

CITY OF NEWPORT BEACH • MARINA PARK PROJECT
DELINEATION OF JURISDICTIONAL WATERS AND WETLANDS

	Elevation (meters)	Elevation (feet)	Transect 3 Distance From Reference Point 3 (feet)
Highest Observed Water Level (01/28/1983)	2.337	7.67	40.3
High Tide Line (HTL)	2.195	7.20	52.1
Field Observed High Water Mark	1.817	5.96	68.0
Mean Higher High Water (MHHW)	1.649	5.41	73.7
Mean High Water (MHW)	1.424	4.67	78.8
Mean Tide Level (MTL)	0.852	2.80	92.2
Mean Sea Level (MSL)	0.845	2.77	92.4
Mean Low Water (MLW)	0.279	0.915	105.1
North American Vertical Datum-1988 (NAVD)	0.055	0.180	110.1
Mean Lower Low Water (MLLW)	0.000	0.000	111.7
Lowest Observed Water Level (01/20/1988)	-0.717	-2.35	125.9



Source: MBA GIS (2009).

NORTH

Not To Scale

Michael Brandman Associates

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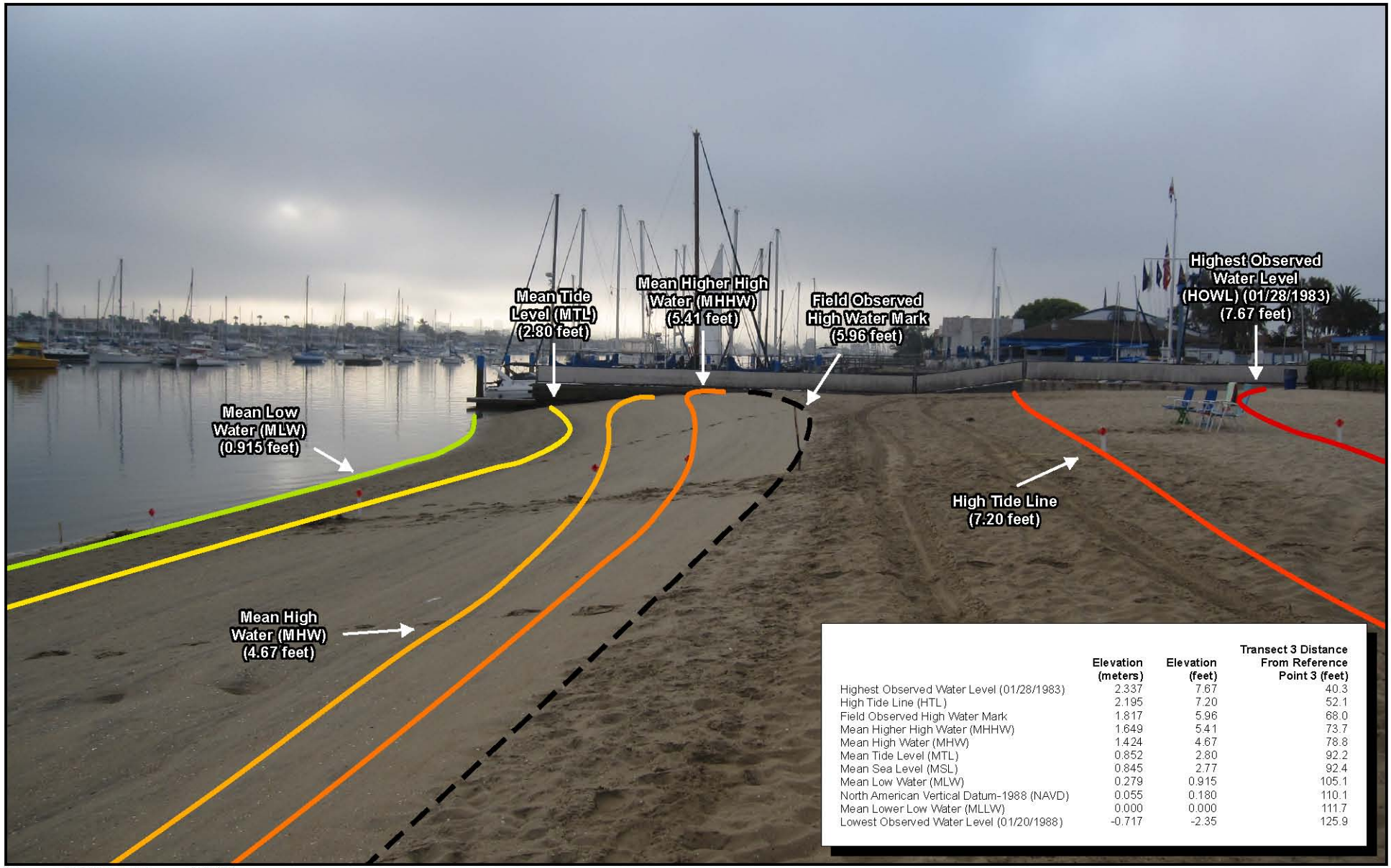
Exhibit 9
Cross Section (Transect 3)

CITY OF NEWPORT BEACH • MARINA PARK PROJECT
DELINEATION OF JURISDICTIONAL WATERS AND WETLANDS



	Elevation (meters)	Elevation (feet)	Transect 3 Distance From Reference Point 3 (feet)
Highest Observed Water Level (01/28/1983)	2.337	7.67	40.3
High Tide Line (HTL)	2.195	7.20	52.1
Field Observed High Water Mark	1.817	5.96	68.0
Mean Higher High Water (MHHW)	1.649	5.41	73.7
Mean High Water (MHW)	1.424	4.67	78.8
Mean Tide Level (MTL)	0.852	2.80	92.2
Mean Sea Level (MSL)	0.845	2.77	92.4
Mean Low Water (MLW)	0.279	0.915	105.1
North American Vertical Datum-1988 (NAVD)	0.055	0.180	110.1
Mean Lower Low Water (MLLW)	0.000	0.000	111.7
Lowest Observed Water Level (01/20/1988)	-0.717	-2.35	125.9

Source: MBA Field Survey (2009).

Michael Brandman Associates

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Exhibit 10
Photographic Cross Section

CITY OF NEWPORT BEACH • MARINA PARK PROJECT
DELINEATION OF JURISDICTIONAL WATERS AND WETLANDS

SECTION 5: REFERENCES

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Appendix A:
Regulatory Compliance

REGULATORY COMPLIANCE

Regulatory permitting for dredge and fill activities involves a compliance framework requiring interaction with federal, state and local agencies, often involving a diverse number of statutes and regulations.

FEDERAL STATUTES AND REGULATIONS - USACE

Clean Water Act Section 404

Pursuant to Section 404 of the Clean Water Act, the USACE regulates the discharge of dredged or fill material into waters of the U.S. Regulated activities include but are not limited to, grading, placing of riprap for erosion control, pouring concrete, laying sod, and stockpiling excavated material. In general, any activity, which proposes to carry out an activity, which will temporarily or permanently affect areas delineated as waters of the US, including wetlands, typically requires prior authorization from the USACE, pursuant to Section 404 of the Clean Water Act (CWA). Successful applications will put forth projects with a valid purpose, which generally comply with the avoidance, minimization and mitigation ("no net loss") goals of the USACE.

Nationwide Permits v. Individual Permits

Nationwide permits (NWPs) are a type of general permit issued by the Chief of Engineers and are designed to expedite the regulatory process for those types of projects/activities expected to have minimal impacts on jurisdictional areas.

The nationwide permitting program is reauthorized every five years. The current NWP program became effective on March 19, 2007 and includes 49 different nationwide permit categories including "*Linear Transportation Projects*" (NWP 14), "*Residential Developments*" (NWP 29), "*Commercial and Institutional Developments*" (NWP 39) and "*Stormwater Management Facilities*" (NWP 43) among others. Each NWP establishes thresholds, which trigger the need for submitting a pre-construction notification (PCN) to the Corps and which set upper limits to accepted impacts based on the total acreage and/or linear feet of impacts, which result from project. Exceeding these limits will require processing an Individual Permit (IP), which may involve a significantly longer processing time.

Federal Jurisdiction over Waters and Wetlands

The USACE will assert jurisdiction over waters that are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. The definition of "Waters of the U.S.," are set forth in the Code of Federal Regulations (CFR) 328.3. The term "waters of the United States" means:

(1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters, which are subject to the ebb and flow of the tide;

(2) All interstate waters including interstate wetlands;

(3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:

(i) Which are or could be used by interstate or foreign travelers for recreational or other purposes;

(ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; and

(iii) Which are used or could be used for industrial purpose by industries in interstate commerce.

(4) All impoundments of waters otherwise defined as waters of the United States under the definition;

(5) Tributaries of waters identified in paragraphs (a) (1)-(4) of this section;

(6) The territorial seas;

(7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) (1)-(6) of this section. (Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 123.11(m) which also meet the criteria of this definition) are not waters of the United States), and

(8) Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with the EPA.

Subsequent to the U.S. Supreme Court decision in *Rapanos, et al v. United States* (2006) the Environmental Protection Agency (EPA) and the USACE (the agencies) issued a joint memorandum (*Clean Water Act Jurisdiction Following Rapanos v. United States*, (June 5, 2007)), which integrates the *Rapanos* standards with the process presented in 33 CFR 328.3(a).

Pursuant to the memorandum, federal jurisdiction will be asserted over the following categories of water bodies:

- (TNWs): TNW, including territorial seas;
- Wetlands adjacent to TNWs;
- (RPWS): Non- navigable tributaries of TNWs with relatively permanent water flow that are flow directly or indirectly to TNWs. "Relatively permanent" means water flowing for at least three months of the year. (Usually, perennial streams and some intermittent streams); and
- Wetlands directly abutting RPWs that flow directly or indirectly into TNWs.

In addition, the agencies will assert jurisdiction over the following categories of water bodies only if, based on fact-specific analysis, the water body is determined to have a significant nexus with a TNW:

- (Non-RPWs): Non-navigable tributaries that do not have relatively permanent water flow that flow directly or indirectly into TNWs (Usually ephemeral and some intermittent streams);
- Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs; and
- Wetlands adjacent to, but not directly abutting RPWs that flow directly or indirectly into TNWs.

"A significant nexus exists if the tributary, in combination with all of its adjacent wetlands has more than a speculative or an insubstantial effect on the chemical, physical, and/or biological integrity of a TNW."

The agencies will not assert jurisdiction over the following geomorphic features:

- "Swales or erosional features (e.g., gullies small washes characterized by low volume, infrequent or short duration flows)," and
- "Ditches (including roadsides ditches) excavated wholly in and draining only uplands that do not carry relatively permanent water flows."

The agencies now require that all determinations for non-navigable waters, isolated-waters and/or wetlands be evaluated by the USACE and EPA before making a final jurisdictional determination.

In the absence of wetlands the lateral extent of federal jurisdiction over non-tidal waters of the U.S. is defined by the ordinary high water mark (OHWM). The OHWM is defined in 33 CFR 328.3, as "*that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil,*

destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas."

In June 2001, the USACE South *Pacific* Division issued *Guidelines for Jurisdictional Delineations for Waters of the United States in the Arid Southwest*. The purpose of this document was to aid delineators in assessing the physical characteristics of dry land drainage systems in the Arid West. With respect to jurisdictional determinations, the factors for determining waters of the U.S include *evaluating* the flow regime geomorphic feature, and general indicators of flow. These methods are consistent with the criteria set forth in 328.3(a) and 328.3(e), but are also subject to guidance set forth in the *Rapanos* guidance, including "significant nexus determinations," as appropriate.

Subject to *Rapanos* limitations, Federal Jurisdiction will extend to "adjacent" wetlands. "Adjacent" means "bordering *contiguous* or neighboring." According to the USACE *Wetlands Delineation Manual, Technical Report*, (1987) three criteria must be satisfied to classify an area as a jurisdictional wetland:

1. A predominance of plant life that is adapted to life in wet conditions (hydrophytic vegetation);
2. Soils that saturate, flood, or pond long enough during the growing season to develop anaerobic conditions in the upper part (hydric soils); and
3. Permanent or periodic inundation or soils saturation, at least seasonally (wetland hydrology).

The USACE has established regional guidance to address specific regional variations in wetlands determinations. These regional guidance documents supplement the 1987 manual. The Interim Regional *Supplement* for the Arid West was published in December 2006. Similarly Draft guidance for Western Mountains, Valleys and Coast Regions" was published in April, 2007. In performing its delineations, MBA applies these supplemental guidance as appropriate.

Resulting from the 2001 US Supreme Court in *Solid Waste Agency of North Cook County v. USACE* (SWANCC) case, federal jurisdiction will not reach wholly intra-state wetlands, which are not "adjacent" to a *jurisdictional* stream course. Similarly, as previously established, the *Rapanos* decision may further limit jurisdiction, on a case-specific basis, where a significant nexus determination is required.

Primary General Conditions (GC) of 404 Permits

GC # 4: Compliance with the Migratory Bird Treaty Act

The MBTA protects all common wild birds found in the US except the house sparrow, starling, feral pigeon, and resident game birds such as pheasant, grouse, quail, and wild turkey. Resident game birds are managed separately by each state. The MBTA makes it unlawful for anyone to kill, capture,

collect, possess, buy, sell, trade, ship, import, or export any migratory bird including feathers, parts, nests, or eggs.

The primary responsibility for complying with the Migratory Bird Treaty Act (MBTA) is that of the project proponent (permittee) and is independent of Department of the Army permitting processes (404). It should be noted, however, that the nationwide permitting program (General Condition 4) does require that breeding areas for migratory birds in waters of the United States must be avoided to the maximum extent practicable.

GC # 17: Compliance with Federal Endangered Species Act

In administering the Section 404 permitting program, the USACE is required to abide by Section 7(a)(2) of the Federal Endangered Species Act (ESA), which requires federal agencies to consult with the United States Fish and Wildlife Service (USFWS) "to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat." As a result, the presence of federally listed species must be determined prior to submittal of the Section 404 application. In the nationwide permitting program compliance with the ESA is set forth in general condition (GC 17)

The USFWS *administers* the Federal Endangered Species Act. The ESA provides a process for listing species as either threatened or endangered, and methods of protecting listed species. The ESA defines as "endangered" any plant or animal species that is in danger of extinction throughout all or a significant portion of its known geographic range. A "threatened" species is a species that is likely to become *endangered*. A "proposed" species is one that has been officially proposed by the USFWS for addition to the federal threatened and endangered species list.

Section 9 of the ESA prohibits "take" of threatened or endangered species. The term "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in such conduct. Take can include disturbance to habitats used by a threatened or endangered species during any portion of its life history. The presence of any federally threatened or endangered species in a project area generally imposes severe constraints on development, particularly if development would result in take of the species or its habitat. Under the regulations of the ESA, the USFWS may authorize take when it is incidental to, but not the purpose of, an otherwise lawful act.

GC # 18: Compliance with National Historic Preservation Act

In processing a Section 404 permit, the USACE is required to comply with section 106 of the National Historic Preservation Act (NHPA). Section 106 consultation is triggered when historic or archaeological *sites* are potentially affected by the proposed project. In the nationwide permitting program compliance with the NHPA is set forth in general condition (GC 18). The USACE will initiate section 106 consultation with the appropriate state agency (SHPO in California) with federal

oversite (ACHP). The process usually requires one month from the date the USACE triggers consultation with the state agency.

GC # 21: Compliance with Section 401 of the Clean Water Act

In connection with notification to the USACE under Section 404 of the Clean Water Act (CWA), pursuant to 33 *CFR* Part 330, a written request for Section 401 water quality certification must be submitted to the RWQCB to ensure that no degradation of water quality will result from the proposed project. Subject to CWA section 401(a)(1), the Army Corps of Engineers cannot issue a section 404 dredge/fill permit until such time as a CWA section 401 Water Quality Certification (WQC) has been approved by the applicable RWQCB. In the nationwide permitting program compliance with the Section 401 is set forth in general condition (GC 21).

In order to meet the requirements of the RWQCB for issuance of a 401-water quality certification, the project proponent must provide assurances that the project will not adversely affect the water quality of receiving water bodies. A written request for 401 water quality certification must be prepared and submitted to the RWQCB for review. The request will include a detailed project description, a description of *proposed* impacts, identification and discussion of beneficial uses of affected receiving waters (as described within the appropriate Basin Plan), a water quality plan identifying project-specific Best Management practices (BMPs), discussion of other approvals and certifications being obtained, a conceptual restoration plan, and a completed notification form.

CEQA Compliance: Pursuant to Title 23, Section 3856(f) of the California Code of Regulations (CCR), the *Regional* Water Quality Control Board (RWQCB) may not issue a Clean Water Act (Section 401) Water Quality Certification (WQC) for a project before being provided with (and having had ample time to review) a copy of the final CEQA documentation prepared for the project. Upon formal request for certification, water quality certification should be forthcoming within 90-120 days of completion of the CEQA process.

Fee Structure: Subject to California Code of Regulations (CCR), Title 23, §3833, a section 401 *application* must be accompanied by an initial deposit of not less than $500.00. If the initial deposit does not cover the agency's application review costs, the RWQCB may require an additional (one-time) amount using the calculus set forth in section 2200(e), Title 23, of the California Code of Regulations.

GC # 22: Compliance with the Coastal Zone Management Act

In administering the Section 404 permitting program, the USACE is required to abide by Section 307(c)(1) of the Coastal Zone Management Act (CZMA). This requirement is set forth in General Condition No. 22 of *the* NWP (2007) program and detailed in 33 CFR 330.4(d). This condition requires the USACE to provide a consistency determination and receive state agreement prior to the authorization of activities affecting land, water, or natural resources within the coastal zone.

The California "Coastal zone" means that land and water area within the State extending seaward to the state's outer limit of jurisdiction, including all offshore islands, and extending inland generally 1,000 yards from the mean high tide line of the sea. In significant coastal estuarine, habitat, and recreational areas it *extends* inland to the first major ridgeline paralleling the sea or five miles from the mean high tide line of the sea, whichever is less, and in developed urban areas the zone generally extends inland less than 1,000 yards. The coastal zone does not include the area of jurisdiction of the San Francisco Bay Conservation and Development Commission, established pursuant to Title 7.2 (commencing with Section 66600) of the Government Code, nor any area contiguous thereto, *including* any river, stream, tributary, creek, or flood control or drainage channel flowing into such area.

STATE STATUES AND REGULATIONS – RWQCB

The State of California has concurrent jurisdiction with the Federal government over §401 Water Quality Certification over jurisdictional waters and wetlands of the United States. Where isolated waters and wetlands (not subject to federal jurisdiction) are involved, the State will exert independent jurisdiction via the Porter Cologne Water Quality Act.

Porter-Cologne Water Quality Act

Section 13260(a) of the California Water Code ("Water Code", or "Porter Cologne") requires that any person discharging waste or proposing to discharge waste within any region, other than to a community sewer system, which could affect the quality of the waters of the State, file a report of waste discharge (ROWD). The discharge of dredged or fill material may constitute a discharge of waste that could affect the quality of waters of the State (Defined in Water Code §13050(e)).

Typically, the State of California relies upon its authority under section 401 of the Federal Clean Water Act (CWA (33 U.S.C. §1341) to regulate discharges of dredged or fill material to California waters that are also within the jurisdiction of the United States Army Corps of Engineers (USACE). Given the water quality certification (WQC) process employed under section 401, waste discharge requirements under Porter Cologne are typically waived for those projects requiring a water quality certification. In 2001 the U.S. Supreme decision in *Sold Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* , 531 U.S. 159 (2001) ("*SWANCC*") invalidated the Army Corp's use of the "Migratory Bird Rule" to establish federal jurisdiction over isolated waters. Since 2001, the State of California has reasserted its authority under state law to assert jurisdiction over isolated waters for water quality purposes by requiring a ROWD.

Regulation of Isolated Waters

Dredging, filling, or excavation of "isolated" waters constitutes a discharge of waste to waters of the State, and prospective dischargers are required to submit a report of waste discharge to the RWQCB and comply with other requirements of the State Porter Cologne Water Quality Act (Water Code).

Scope of Regulation: With respect to isolated waters, discharges and/or dredging of wetlands, active channels or beds of waterbodies are regulated. Discharges to riparian or areas in proximity to a waterbody are regulated when such activity will directly or indirectly result a change to water quality. Such changes may include discharge of stormwater pollutants and runoff; change in the nature of vegetation that could affect water quality (e.g., affecting pollutant removal, stream shading or bank stability); or change to the hydrological or geomorphic characteristics of the waterbody.

Application of Regulation: Whenever the USACE issues a jurisdictional disclaimer (concurs with a finding of no federal jurisdiction), the respective RWQCB is notified of the disclaimer. Typically, the RWQCB will issue a letter notifying the project proponent that a ROWD must be filed. A ROWD must be submitted in one of two forms, depending on the anticipated impacts.

(1) General Waste Discharge Requirement (GWDR): The GWDR program is substantively set forth in SWRCB Water Quality Order No. 2004-0004-DWQ. GWDRs are generally prescribed for a category of discharges (either temporary or permanent) involving earth, rock, or similar solid materials if the discharge will not be greater than 0.2 acres and 400 linear feet (for fill or excavation) or 50 cubic yards (for dredging). The type of projects that may be covered under these General WDRs include land development, detention basins, disposal of dredged material, bank stabilization, revetment, channelization, and other similar projects. GWDRs do not apply to discharges that adversely impact, either directly or through habitat modification, any plants or animals identified as candidate, sensitive, or special status species in local or regional plans, or by the CDFG (including NCCPs), or USFWS (including HCPs). Similarly, GWDRs do not apply to discharges impacting significant historical, archaeological or paleontological resources.

Requirements: The GWDR typically requires submittal of the following items: (1) A Notice of Intent (NOI), (2) Any CEQA documents that have been prepared for the project, (3) A fee pursuant to Title 23, section 2200 of the CCR, (4) A Mitigation Plan demonstrating that the discharger will sequentially avoid, minimize, and compensate for the adverse impacts to the affected water bodies, and beneficial uses (as set forth in the applicable Basin Plan), and (5) Any other relevant information requested by the SWRCB or RWQCB. A copy of the application must be submitted to both the applicable RWQCB and to the SWANC-ROWD, Water Quality Certification Unit in Sacramento.

Timing: Pursuant to the requirements of the California Permit Streamlining Act, RWQCB has 30 days to deem the application complete. Upon receipt of a complete submittal, the RWQCB has 45 days in which to issue a Notice of Applicability (NOA) (authorizing the activity) or a Notice of Exclusion (NOE) (denying authorization. The discharge activity is operationally authorized if no NOE is issued within the 45-day evaluation period, provided that the proposed activity is not a prohibited activity.

(2) Individual Waste Discharge Requirements (IWDR): Projects not qualifying for the GWDRs will need to satisfy individual waste discharge requirements, typically requiring submittal of 401 Water Quality Certification forms and supporting documentation as set forth by the respective RWQCB. Such submittals are subject to fees as set forth in California Code of Regulations Title 23

Section 2200(a)(2). Pursuant to the Water Code the project proponent is required to file with the appropriate Regional Water Quality Control Board (RWQCB) a Report of Waste Discharge describing the proposed discharge at least 140 days before it occurs (Water Code §§13260, 13264).

STATE STATUTES AND REGULATIONS - CDFG

Section 1600/1602 of the California Fish and Game Code

In the public interest of protection and conservation of fish and wildlife resources of the state (§1600), Fish and Game Code Section 1602 requires any person, state or local governmental agency, or public utility to notify the CDFG before beginning any activity that will do one or more of the following: (1) substantially obstruct or divert the natural flow of a river, stream, or lake; (2) substantially change or use any material from the bed, channel, or bank of a river, stream, or lake; or (3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream, or lake. CDFG's jurisdiction includes ephemeral, intermittent, and perennial watercourses, including dry washes, characterized by:

1 The presence of hydrophytic vegetation.

2. The location of definable bed and banks.

3. The presence of existing fish or wildlife resources.

Furthermore, CDFG jurisdiction is often extended to habitats adjacent to watercourses, such as oak woodlands in canyon bottoms or willow woodlands that function as part of the riparian system. Historic court cases have further extended CDFG jurisdiction to include watercourses that seemingly disappear, but re-emerge elsewhere. Under the CDFG definition, a watercourse need not exhibit evidence of an OHWM to be claimed as jurisdictional. However, CDFG does not regulate isolated wetlands; that is, those that are not associated with a river, stream, or lake.

CDFG Regulated Activities

The CDFG regulates activities that involve diversions, obstruction, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake that supports fish or wildlife resources. When a project requires such activities, a Section 1602 Streambed Alteration Notification will be prepared and submitted to the CDFG for review. The request will include a detailed project description, a description of proposed impacts, a conceptual mitigation plan, and completed notification forms. Typically, CDFG will be able to complete the agreement within 60-90 days of the completion of the CEQA process.

CEQA Compliance: It should be noted that CDFG must also comply with the California Environmental Quality Act (CEQA) (Pub. Resources Code, §21000, et seq.) before it may issue a *final* Lake or Streambed Alteration Agreement. Issuance of a final Lake or Streambed Alteration Agreement occurs after the Department receives a *draft* Lake or Streambed Alteration Agreement from the applicant and the Department signs it. In many instances, the Department will receive a signed draft Lake or Streambed Alteration Agreement from an applicant before the lead agency has fully complied with CEQA. In those instances, the Department must wait for the lead agency to fully

comply with CEQA before it may sign the draft Lake or Streambed Alteration Agreement, thereby making it final.

Fee Structure: Pursuant to California Code of Regulations (CCR), Title 14 §699.3, CDFG assesses a fee to cover the cost of reviewing §1602 applications. The fee calculus is based on the sum cost of the proposed activities within the streambed or riparian community.

Sensitive Plant and Wildlife Species

Sensitive species are native species that have been accorded special legal or management protection because of concern for their continued existence. There are several categories of protection at both federal and state levels, depending on the magnitude of threat to continued existence and existing knowledge of population levels.

California Endangered Species Act

The CDFG administers the California Endangered Species Act (CESA). The State of California considers an "endangered" species one whose prospects of survival and reproduction are in immediate jeopardy. A "threatened" species is one present in such small numbers throughout its range that it is likely to become an endangered species in the near future in the absence of special protection or management. A "rare" species is one present in such small numbers throughout its portion of its known geographic range that it may become endangered if its present environment worsens. The rare species designation applies to California native plants. State threatened and endangered species are fully protected against take, as defined above. The term "species of special concern" is an informal designation used by CDFG for some declining wildlife species that are not state candidates for listing. This designation does not provide legal protection under CESA, but signifies that these species are recognized as sensitive by CDFG.

California Native Plant Society

The CNPS is a California resource conservation organization that has developed and inventory of California's sensitive plant species (Tibor 2001). This inventory summarizes information on the distribution, rarity, and endangerment of California's vascular plants. The inventory is divided into four lists based on the rarity of the species. In addition, the CNPS provides an inventory of plant communities that are considered sensitive by the state and federal resource agencies, academic institutions, and various conservation groups. Determination of the level of sensitivity is based on the number and size of remaining occurrences as well as recognized threats.

Section 3503 and 3511 of the California Fish and Game Code

The CDFG administers the California Fish and Game Code. Code 3503 makes it illegal to destroy any birds' nest or any birds' eggs that are protected under the MBTA. Code 3503.5 further protects all birds in the orders *Falconiformes* and *Strigiformes* (birds of prey, such as hawks and owls) and their eggs and nests from any form of take. Section 3511 of the Code lists fully protected bird species, where the CDFG is unable to authorize the issuance of permits or licenses to take these species.

Appendix B: Jurisdictional Wetlands and Significant Nexus Determination

CRITERIA FOR WETLAND DETERMINATIONS

USACE

As defined in 33 CFR part 328.3(a)(7) and as established by current case law, the USACE will currently assert jurisdiction over wetlands adjacent to waters of the U.S., except for those wetlands adjacent to other wetlands.

The term "wetlands" means those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence or vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes , bogs, and similar areas (33 CFR part 328.3(b)).

Typically, the term "adjacent" means bordering, contiguous, or neighboring. Wetlands separated from other waters of the U.S. by man-made dikes or barriers, natural river berms, beach dunes, and the like are also adjacent (33 CFR part 328.3(c)). Similarly, the wetland must be adjacent to either a navigable in-fact water way or tributary thereof. Where "adjacency" cannot be established, the wetlands will be determined to be an "isolated" non-jurisdictional feature unless an independent nexus to interstate or foreign commerce can be established as per 33 CFR part 328.3(a)(3). (Also see SWANCC v. US, 2001).

Based on the standards established in *Rapanos v. U.S.*, the USACE will not assert jurisdiction over wetlands where: (1) the wetlands are adjacent to non-navigable tributaries that lack relatively permanent flows, or (2) wetlands are adjacent to but not abutting non-navigable tributaries with relatively permanent water, unless in both cases the relevant portion (reach) of the drainage, together with all of its wetlands, have a significant nexus to a TNW.

According to the USACE *Wetlands Delineation Manual, Technical Report* (1987), three criteria must be satisfied to classify an area as a jurisdictional wetland:

1. ***Hydrophytic Vegetation***: A predominance of plant life that is adapted to life in wet conditions (hydrophytic vegetation);
2. ***Hydric Soils***: Soils that saturate, flood, or pond long enough during the growing season to develop anaerobic conditions in the upper part (hydric soils), and
3. ***Wetland Hydrology***: Permanent or periodic inundation or soils saturation, at least seasonally (wetland hydrology).

The USACE has established regional guidance to address specific regional variations in wetlands determinations. These regional guidance documents supplement the 1987 manual The Interim Regional Supplement for the Arid West, that was published in December 2006. Similarly, Draft

guidance for Western Mountains, Valleys and Coast Regions" was published in April, 2007. In performing its delineations, MBA applies these supplemental guidance as appropriate.

As established in both the USACE 87 Manual and the "Arid West" regional guidance, the following criteria apply.

Hydrophytic Vegetation

Hydrophytic vegetation is defined as plant life growing in water, soil, or substrate that is at least periodically deficient in oxygen because of excessive water content. The USFWS has published the *National List of Vascular Plant Species That Occur in Wetlands*, (1996 National Summary, hereafter NLVPS) and divided plants into 5 groups based on their "wetland indicator status:"

1. Obligate wetland plants (OBL) that occur almost always in wetlands under natural conditions;

2. Facultative wetland plants (FACW) that usually occur in wetlands but occasionally are found in upland areas;

3. Facultative plants (FAC) that are equally likely to occur in wetlands as well as upland;

4. Facultative upland plants (FACU) that usually occur in upland areas but occasionally are found in wetlands; and

5. Upland plants (UPL) that occur almost always in upland areas under natural conditions.

Plus (+) and minus (-) values, used in identifying indicator status in the NLVPS are not applied when evaluating plants in the arid west region. In the arid west, an area is deemed to have hydrophytic vegetation when either it: (1) passes the dominance test; (2) has a prevalence index ≤ 3; (3) morphological adaptations are present; or (4) the area is a "problem area." (See, *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual*: *Arid West Region*, December 2006.)

Dominance Test: An area has hydrophytic vegetation when, under normal circumstances, more than 50 percent of the composition of dominant plant species (using the 50/20 rule) from all strata are obligate wetland (OBL), facultative wetland (FACW) and/or facultative species (FAC). If the plant community passes the dominance test, then the vegetation is hydrophytic and no further vegetation analysis is required. If the plant community fails the dominance test, and indicators of hydric soil and/or wetland are absent then hydrophytic vegetation is absent unless the site meets requirements for a problematic wetland situation.

Prevalence Test: In areas failing the dominance test yet having indicators of hydric soil and wetland hydrology, the vegetation must be re-evaluated using the "prevalence index" (PI). The prevalence index takes into account all plant species in the community, not just a few dominants. The index is a

weighted-average wetland indicator status of all plant species in the sampling plot, where each indicator status category is a given a numeric code (OBL =1, FACW =2, FAC = 3, FACU = 4, and UPL = 5) and weighting is by abundance (percent cover). The sum of the weighted indicator values are then divided by the sum of the percent cover values for each indicator type. Where the PI value is ≤3, the area is considered positive for hydrophytic vegetation. Generally, the index is a more comprehensive analysis of the hydrophytic status of the community than one based on just a few dominant species. The index is particularly useful: (1) in communities only one or two dominants; (2) in highly diverse communities where many species may be present at roughly equal coverage; and (3) when strata differ greatly in total plant cover. The prevalence index is used on sites where indicators of hydric soil and wetland hydrology are present but the vegetation initially fails the dominance test.

Morphological Adaptations: In areas failing both the dominance test and prevalence test, yet having indicators of hydric soil and wetland hydrology, hydrophytic vegetation will still be deemed present when the morphological adaptations are present. In the arid west the most common morphological adaptations are adventitious roots and shallow root systems developed on or near the soil surface on FACU species. If more than 50 percent of the FACU species have morphological adaptations, then these species are classified as FAC species and the dominance test and/or prevalence index are recalculated. The vegetation is hydrophytic if either test is positive.

Hydric Soils

Hydric soils are defined as soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part. "Long enough" generally means 1 week during the growing season and soils that are saturated for this period usually support hydrophytic vegetation. The criteria for establishing the presence of hydric soils vary among different types of soils and between normal circumstances, disturbed areas, and problem areas. Due to their wetness during the growing season, hydric soils usually develop certain morphological properties that can be readily observed in the field. Prolonged anaerobic soil conditions typically lower the soil redox potential, causing a chemical reduction of some soil components, mainly iron oxides and manganese oxides. This reduction is typically reflected by the presence of iron or manganese concretions, gleying or mottling. Other field indicators of hydric soils include the presence of sulfidic material, an aquic or peraquic moisture regime, or a spodic horizon. (All organic soils, with the exception of Folists, are classified as hydric soils.)

Wetland Hydrology

Wetland hydrology is permanent or periodic inundation, or soil saturation for a significant period during the growing season. Numerous factors influence the wetness of an area, including precipitation, stratigraphy, topography, soil permeability, and plant cover. At certain times of the year in most wetlands, and in certain types of wetlands at most times, wetland hydrology is quite evident, since surface water or saturated soils may be observed. Yet, in many instances, especially

along the uppermost boundary of wetlands, hydrology is not readily apparent. Despite this limitation, hydrologic indicators can be useful for confirming that a site with hydrophytic vegetation and hydric soils still exhibits wetland hydrology. While hydrologic indicators are sometimes diagnostic of the presence of wetlands, they are generally either operationally impracticable (e.g. in the case of recorded data) or technically inaccurate (e.g., in the case of some field indicators) for delineating wetland boundaries.

The following hydrologic indicators, while not necessarily indicative of hydrologic events during the growing season or in wetlands alone, do provide evidence that inundation or soil saturation has occurred at some time: visual observation of inundation, visual observation of soil saturation, oxidized channels (rhizospheres) associated with living roots and rhizomes, water marks, drift lines, waterborne sediment deposits, water-stained leaves, surface scoured areas, morphological plant adaptations, and hydric soil characteristics.

Problem Areas and Atypical Situations

In the arid west some wetlands may periodically lack indicators of hydrophytic vegetation, hydric soils or wetland hydrology due to normal (natural) seasonal or annual variability. Similarly, indicators in some areas may be affected by atypical situations brought about by recent human activities or unusual natural events. The Arid West Regional Guidance sets forth a number of procedures to identify and analyze problems areas. Examples of problem areas and atypical situations may include:

Problematic Vegetation:

- *Temporal Shifts in Vegetation*: plant communities in playas, venal pools, seepas and springs change in response to seasonal climatic fluctuations. These changes may result from:
    - Seasonal shifts in plant communities between normal wet/dry season
    - *Drought Conditions* lasting more than one growing season.

- *Sparse and Patchy Vegetation*: A seasonal pond must have at least 5 percent plant cover to be considered vegetated. To be considered jurisdictional, unvegetated areas may be considered as other waters of the U.S. if they exhibit Ordinary High Water (OHW) indicators as set forth in 33 CFR 328.3
- *Riparian Areas*: Where there is high variability in wetland vegetation indicator status between the different strata. (Usually the tree strata has wetter indicator status than other strata.)
- *Areas Affected by Grazing*:
- *Managed Plant Communities*: horticulture, tilling/disking.
- *Areas Affected by Fires, Floods and Other Natural Disturbances*:
- *Vigor and Stress Response to Wetland Conditions*: horticulture is either robust or impeded by hydric soils, and/or wetland hydrology.

Problematic Hydric Soils:

- *Moderately to Very Strong Alkaline Soils*: Redox concentrations and depletions are not always evident in soils with pH of 7.9 or higher.
- *Volcanic Ash*: Soils of volcanic origin are high in silica content and low in redoximorphic minerals such as iron, manganese, and sulfur.
- *Vegetated Sand and Gravel Bars within Flood Plains*: Flood plains may lack hydric soil indicators because seasonal flooding deposits new layers of soil material or the deposited material may lack redoximorphic minerals.
- *Recently Developed Wetlands*: may include mitigation sites, wetland management areas, unintentionally produced wetlands (flood irrigation, leaking water pipes, etc).
- *Seasonally Ponded Soils*: depressional wetlands, usually with perched systems above a restrictive soil layer (hardpan or clay) where the saturation depth or saline conditions prohibit hydric soil indicators.
- *Soils with Relict or Induced hydric Soil Indicators*: in some areas redoximorphic features in hydric soils were formed in the recent or distant past when conditions were substantially wetter than at present. Hydric soil indicators may persist in low land areas which were historically flooded (such as in California's Central Valley) even though the area has been drained for agricultural purposes. Alternatively, hydric soils indicators in upland areas may have formed historically from flood irrigation or like agricultural activities which no longer persist.

Problematic Wetland Hydrology:

- *Site Visits During the Dry Season*: Hydrophytic vegetation may be absent or diminished during the dry-season (when evapo-transpiration exceeds precipitation). When possible the site should be visited (or re-visited) during the normal wet season.
- *Periods with Below Normal Rainfall*: Rainfall in the 3-month period prior to the site visit should be compared to historical averages from the National Water and Climate Center (NRCS). Rainfall should be between the high and low 30 percent probability values.
- *Drought Years*: Areas subject to drought conditions particularly lasting several years may affect wetland hydrology indicators. The ***Palmer Drought Severity Index (PDSI)*** (known operationally as the *Palmer Drought Index (PDI)*) attempts to measure the duration and intensity of the long-term drought-inducing circulation patterns. Long-term drought is cumulative, so the intensity of drought during the current month is dependent on the current weather patterns plus the cumulative patterns of previous months. Since weather patterns can change almost literally overnight from a long-term drought pattern to a long-term wet pattern, the PDSI (PDI) can respond fairly rapidly. PDSI values range between -6 and +6 with negative values indicating dry periods and positive values indicating wet periods:

  - (-4 to -6) - Extreme Drought;
  - (-3) - Severe Drought;
  - (-2) - Moderate Drought; and
  - (-1) - Mild Drought.
- *Years with Unusually Low Winter Snowpack*: the hydrology of areas with water-sheds in adjacent mountain regions may be affected by annual variability in the liquid equivalent of the snow pack.
- *Reference Sites*: If indicators of hydric soil and hydrophytic vegetation are present on a site that lacks wetland hydrology indicators, the site may be considered to be a wetland if the landscape setting, topography, soils, and vegetation are substantially the same as those on nearby reference areas.
- *Hydrology Tools*: A collection of methods can be used to determine whether wetland hydrology is present on a potential wetland site that lacks indicators due to disturbances or other reasons (particularly in agricultural areas).
- *Long-term Hydrological Monitoring*: Areas may be monitored over long periods of time.

CALIFORNIA DEPARTMENT OF FISH & GAME:

The California Wildlife Protection Act as codified in the Fish & Game code defines "wetlands" as "*lands which may be covered periodically or permanently with shallow water and which include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, fens, and vernal pools*." (Fish & Game Code §2785(g))

SIGNIFICANT NEXUS DETERMINATION:

A significant nexus determination is required when the following water bodies are present:
(1) Non-navigable tributaries that do not have relatively permanent water flow that flow directly or indirectly into TNWs (usually ephemeral and some intermittent streams); (2) Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs; or (3) Wetlands adjacent to, but <u>not directly abutting</u> RPWs that flow directly or indirectly into TNWs.

The determination begins by first identifying the relative reach of the applicable tributary. With respect to "significant nexus determinations," the "relevant reach" will include all tributary waters of the same order. Typically this will include the tributary and all adjacent wetlands reaching down stream from the project site to the confluence with the next tributary, and upstream to any a similar confluence.

To have a significant nexus a tributary and its adjacent wetlands must have more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. A significant nexus determination requires evaluation of hydrological and ecological factors, which may contribute

to the maintenance of water quality, aquatic life, commerce, navigation, recreation, and public health in the TNW.

- Hydrological Factors:
  - Volume, duration, and frequency of flow: including consideration of certain characteristics of the tributary, including historic records of flow, flood predictions, gauge data and personal observations (OHWM, Shelving, water staining, sediment sorting and scouring);
  - Proximity to the TNW: If a tributary is too far from the TNW it's remoteness is more likely to make the impact on the TNW speculative;
  - Contextual hydrological factors: including (1) size of the watershed, (2) average annual rainfall, and (3) average annual snow pack, and
  - The presence of tributary or wetland within the flood plain: It should be noted, however that a significant nexus determination cannot be based solely on presence of the water body within or outside the flood plain.

- Ecological Factors:
  - The ability of the tributary and its adjacent wetlands (if any) to carry pollutants and flood waters to TNW;
  - The Ability of the tributary and its adjacent wetlands (if any) to provide aquatic habitat that supports biota of a TNW;
  - The ability of adjacent wetlands to trap and filter pollutants or store flood water, and
  - The ability to maintain water quality.

COASTAL ZONE

Jurisdictional assessments in the California coastal zone must also evaluate potential wetland areas using the criteria established in the California Coastal Act and set forth in the California Code of Regulations.

The California "Coastal zone" means that land and water area within the State extending seaward to the state's outer limit of jurisdiction, including all offshore islands, and extending inland generally 1,000 yards from the mean high tide line of the sea. In significant coastal estuarine, habitat, and recreational areas it extends inland to the first major ridgeline paralleling the sea or five miles from the mean high tide line of the sea, whichever is less, and in developed urban areas the zone generally extends inland less than 1,000 yards. The coastal zone does not include the area of jurisdiction of the San Francisco Bay Conservation and Development Commission, established pursuant to Title 7.2 (commencing with Section 66600) of the Government Code, nor any area contiguous thereto, including any river, stream, tributary, creek, or flood control or drainage channel flowing into such area.

The California Coast Act section 30121 defines the term "wetland" as, "*Lands within the coastal zone which be covered periodically or permanently with shallow water and includes saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mud flats, and fens.*"

The Coastal Act is administered in the State by the California Coastal Commission (CCC). Coastal Commission regulations (California Code of Regulations Title 14 (14CCR)) establish a "one parameter definition" that only requires evidence of a single parameter to establish wetland conditions:

> "*Wetland shall be defined as land where the water table is at, near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes, and shall also include types of wetlands where vegetation is lacking and soil is poorly developed or absent as a result of frequent drastic fluctuations of surface water levels, wave action, water flow, turbidity or high concentration of salts or other substances in the substrate. Such wetlands can be recognized by the presence of surface water or saturated substrate at some during each year and their location within, or adjacent to vegetated wetland or deepwater habitats.*" (14 CCR 13577)

The Commission's one parameter definition is similar to the USFWS wetlands classification system, which states that wetlands must have one or more of the following three attributes: (1) at least periodically the land supports predominantly hydrophytes; (2) the substrate is predominantly un-drained hydric soil; and (3) the substrate is non-soil and is saturated with water or covered by shallow water at some time during the growing season of each year.

SAN FRANCISCO BAY CONSERVATION AND DEVELOPMENT COMMISSION JURISDICTION

Within the area of San Francisco Bay Conservation and Development Commission (BCDC) CCC jurisdictional criteria does not apply, however USACE wetland determination criteria will apply.

It is also noted that the primary State law governing the BCDC, the McAteer-Petris Act, does not define wetlands but does outline the BCDC's jurisdiction respective of wetlands.

> "*Managed wetlands consisting of all areas which have been diked off from the bay and have been maintained during the three years immediately preceding the effective date of the amendment of this section during the 1969 Regular Session of the Legislature as a duck hunting preserve, game refuge or for agriculture.*" (Gov. Code §66610(b))

Appendix C:
Glossary of Terms

GLOSSARY OF TERMS

Term	Source	Page	Definition
Abutting	6	69	With respect to jurisdictional determinations, wetlands that are not separated from the tributary by an upland feature, such as a berm or dike, is "abutting."
Adjacent	7	N/A	The term "adjacent" means bordering, contiguous, or neighboring. Wetlands separated from other waters of the United States by man-made dikes or barriers, natural river berms, beach dunes and the like are "adjacent wetlands."
Aerial Miles	6	53	With respect to jurisdictional determinations, "aerial miles" is the straight line (linear) distance between the water bodies in question.
Best Management Practices (BMPs)	4	11196	Policies, practices, procedures, or structures implemented to mitigate the adverse environmental effects on surface water quality resulting from development. BMPs are categorized as structural or non-structural.
Clean Water Act (CWA) of 1972	NA	NA	Also known as the Federal Water Pollution Control Act (FWPCA) 33U.S.C.A §§1251 to 1387 (alternatively cited as §§101 – 607). The primary goal as defined in §1251(a) is "*to restore and maintain the chemical, physical, and biological integrity of the Nation's waters*." Jurisdiction to regulate "waters of the United States," vested under this Act include: §303 (Water Quality Standards and implementation Plans), §311 (Spill Program and *Oil Pollution Act*), §401 (State Water Quality Certification), §402 (National Pollutant Discharge Elimination System – NPDES), §404 (Permits for dredge or fill material).
Clean Water Act (CWA) §303	NA	NA	*Section 303 Water Quality Standards Program*: Under this program, State and authorized Indian Tribes establish water quality standards for navigable waters to "*protect the public health or welfare*" and "*enhance the quality of water*," "*taking into consideration their use and value for public water supplies, propagation of fish and wildlife, recreational purposes, and agriculture, industrial, and other purposes, and also taking into consideration their use and value for navigation*."
Clean Water Act (CWA) §311	NA	NA	*Section 311 Spill Program and the Oil Production Act (OPA)*: Under this program, the CWA addresses pollution from both oil and hazardous substance releases. Together with the Oil Pollution Act, it provides EPA and the U.S. Coast Guard with the authority to establish a program for preventing, preparing for, and responding to, spills that occur in navigable waters of the United States.
Clean Water Act (CWA) §401	NA	NA	*Section 401 State Water-Quality Certification*: Provides that no Federal permit or license for activities that might result in a discharge to navigable waters may be issued unless a CWA Section 401 water quality certification is obtained from or waived by States or authorized Tribes.

GLOSSARY OF TERMS

Term	Source	Page	Definition
Clean Water Act (CWA) §402	NA	NA	*Section 402 National Pollutant Discharge Elimination Program (NPDES)*: This program established a permitting system to regulate point source discharges of pollutants (other than dredged or fill material) into waters of the United States.
Clean Water Act (CWA) §404	NA	NA	*Section 404 Dredged and Fill Material Permit Program*: This program established a permitting system to regulate discharges of dredged or fill material into waters of the United States.
Compensatory Mitigation	4	11196	The restoration, establishment (creation), enhancement, or reservation of aquatic resources for the purpose of compensating for unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.
Currently Serviceable	4	11196	Useable as is or with some maintenance, but not so degraded as to essentially require reconstruction.
Discharge	4	11196	The term ”discharge’’ means any discharge of dredged or fill material and any activity that causes or results in such a discharge.
Diurnal Tide Level	9	NA	The arithmetic mean of mean higher high water and mean lower low water.
Enhancement	4	11196	The manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.
Ephemeral Stream	4	11196	An ephemeral stream has flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.
Establishment (Creation)	4	11196	The manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area.
Facultative Plants (FAC)	1	14	Plants with a similar likelihood (estimated probability of 33 percent to 67 percent) of occurring in both wetlands and non-wetlands.
Facultative Wetland Plants (FACW)	1	14	Plants that occur usually (estimated probability >67 percent to 99 percent) in wetlands, but also occur (estimated probability 1 percent to 33 percent) in non-wetlands.
Facultative Upland Plants (FACU)	1	14	Plants that occur sometimes (estimated probability 1 percent to <33 percent) in wetlands, but occur more often (estimated probability >67 percent to 99 percent) in non-wetlands.
Great Diurnal	9	NA	The difference in height between mean higher high water and

GLOSSARY OF TERMS

Term	Source	Page	Definition
Range (GT)			mean lower low water.
Greenwich High Water Interval (HWI)	9	NA	The average interval (in hours) between the moon's transit over the Greenwich meridian and the following high water at a location.
Greenwich Low Water Interval (LWI)	9	NA	The average interval (in hours) between the moon's transit over the Greenwich meridian and the following low water at a location.
High tide line (HTL)	7	N/A	The term "high tide line" means the line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm.
Historic Property	4	11196	Any prehistoric or historic district, site (including archaeological site), building, structure, or other object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization which meet the National Register criteria (36 CFR part 60).
Hydrological Units	8	1-3	As prescribed by the USGS, refers to the four levels of subdivisions, used for the collection and organization of hydrological data. The hierarchy of hydrological units include: (1) Regions (2) Subregions (3) Accounting Units, and (4) Cataloging Units. The identifying codes associated with these units are "hydrological unit codes."
Hydrological Units – "Regions"	8	3	The first level of USGS hydrological classification, which divides the Nation into 21 Major geographic areas. These geographic areas (hydrologic areas based on surface topography) contain either the drainage area of a major river, or the combined drainage areas of a series of rivers. Most of California is located within region "18". Notable exceptions include the Tahoe basin ("Great Basin Region 16") and the Colorado River ("Lower Colorado Region 15"). All smaller hydrological units with the region begin with the region number (18).
Hydrological Units –	8	3	The second level of USGS hydrological classification, divides the 21 regions into 222 subregions (nationally). A subregion

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Term	Source	Page	Definition
"Subregions"			includes the area drained by a river system a reach of a river and its tributaries in that reach, a closed basin(s), or a group of streams forming a coastal drainage area. Within Region 18, the state of California includes 10 sub-regions.
Hydrological Units – "Accounting Units"	8	3	The third level of USGS hydrological classification, subdivides many of the subregions in accounting units. These 352 hydrologic accounting units nest within, or are equivalent to, the subregions. The accounting units are used by the Geological Survey for designing and managing the National Water Data Network. Within Region 18, the state of California includes 16 Accounting Units.
Hydrological Units – "Cataloging Units"	8	3	The fourth level of USGS hydrological classification is the cataloging unit, the smallest element in the hierarcy of hydrologic units. A cataloging unit is a geographic area representing part of all of a surface drainage basin, a combination of drainage basins, or a distinct hydrological feature. There are 2,150 cataloging units in the United States. Within Region 18, the state of California includes 135 cataloging units.
Independent utility	4	11196	A test to determine what constitutes a single and complete project in the Corps regulatory program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.
Intermittent stream	4	11196	An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.
Loss of Waters of the United States	4	11196	Waters of the United States that are permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity. Permanent adverse effects include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a water body, or change the use of a water body. The acreage of loss of waters of the United States is a threshold measurement of the impact to jurisdictional waters for determining whether a project may qualify for an Nationwide Permit (NWP); it is not a net threshold that is calculated after considering compensatory mitigation that may be used to offset losses of aquatic functions and services. The loss of stream bed includes the linear feet of stream bed that is filled or excavated. Waters of the United States temporarily filled, flooded, excavated, or drained, but restored to pre-construction contours and elevations after construction, are not included in the measurement of loss of

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			waters of the United States. Impacts resulting from activities eligible for exemptions under Section 404(f) of the Clean Water Act are not considered when calculating the loss of waters of the United States.
Mean Diurnal High Water Inequality (DLQ)	9	NA	The difference in height of the two low waters of each tidal day for a mixed or semidiurnal tide.
Mean Diurnal High Water Inequality (DHQ)	9	NA	The difference in height of the two high waters of each tidal day for a mixed or semidiurnal tide.
Mean Lower Low Water (MLLW)	9	NA	The average of the lower low water height of each tidal day observed over the National Tidal Datum Epoch. For stations with shorter series, comparison of simultaneous observations with a control tide station is made in order to derive the equivalent datum of the National Tidal Datum Epoch.
Mean Low Water (MLW)	9	NA	The average of all the low water heights observed over the National Tidal Datum Epoch. For stations with shorter series, comparison of simultaneous observations with a control tide station is made in order to derive the equivalent datum of the National Tidal Datum Epoch.
Mean Higher High Water (MHHW)	9	NA	The average of the higher high water height of each tidal day observed over the National Tidal Datum Epoch. For stations with shorter series, comparison of simultaneous observations with a control tide station is made in order to derive the equivalent datum of the National Tidal Datum Epoch.
Mean High Water (MHW)	9	NA	The average of all the high water heights observed over the National Tidal Datum Epoch. For stations with shorter series, comparison of simultaneous observations with a control tide station is made in order to derive the equivalent datum of the National Tidal Datum Epoch.
Mean Range of Tide (MN)	9	NA	The difference in height between mean high water and mean low water.
Mean Sea Level (MSL)	9	NA	The arithmetic mean of hourly heights observed over the National Tidal Datum Epoch. Shorter series are specified in the name; e.g. monthly mean sea level and yearly mean sea level.
Mean Tide Level (MTL)	9	NA	The arithmetic mean of mean high water and mean low water.
Non-tidal wetland	4	11196	A non-tidal wetland is a wetland that is not subject to the ebb and flow of tidal waters. The definition of a wetland can be found at 33 CFR 328.3(b). Non-tidal wetlands contiguous to tidal waters are located landward of the high tide line (i.e., spring high tide line).

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Term	Source	Page	Definition
National Tidal Datum Epoch	9	NA	The specific 19-year period adopted by the National Ocean Service as the official time segment over which tide observations are taken and reduced to obtain mean values (e.g., mean lower low water, etc.) for tidal datums. It is necessary for standardization because of periodic and apparent secular trends in sea level. The present NTDE is 1983 through 2001 and is actively considered for revision every 20-25 years. Tidal datums in certain regions with anomolous sea level changes (Alaska, Gulf of Mexico) are calculated on a Modified 5-Year Epoch.
Obligate Wetland Plants (OBL)	1	14	Plants that occur almost always (estimated probability >99 percent) in wetlands under natural conditions, but which may also occur rarely (estimated probability <1 percent) in non-wetlands.
Obligate Upland Plants (UPL)	1	14	Plants that occur rarely (estimated probability <1 percent) in wetlands, but occur almost always (estimated probability >99 percent) in non-wetlands under natural conditions.
Open Water	4	11196	For purposes of the NWPs, an open water is any area that in a year with normal patterns of precipitation has water flowing or standing above ground to the extent that an ordinary high water mark can be determined. Aquatic vegetation within the area of standing or flowing water is either non-emergent, sparse, or absent. Vegetated shallows are considered to be open waters. Examples of ``open waters'' include rivers, streams, lakes, and ponds.
Ordinary High Water Mark	7	N/A	The term *"ordinary high water mark"* means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.
Ordinary High Water Mark	4	11196	An ordinary high water mark is a line on the shore established by the fluctuations of water and indicated by physical characteristics, or by other appropriate means that consider the characteristics of the surrounding areas (see 33 CFR 328.3(e)).
Perennial Stream	4	11197	A perennial stream has flowing water year-round during a typical year. The water table is located above the stream bed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.
Practicable	4	11197	Available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.
Pre-construction notification	4	11197	A request submitted by the project proponent to the USACE for confirmation that a particular activity is authorized by a NWP. The request may be a permit application, letter, or similar document that includes information about the proposed work

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			and its anticipated environmental effects. Pre-construction notification may be required by the terms and conditions of a NWP, or by regional conditions. A pre-construction notification may be voluntarily submitted in cases where pre-construction notification is not required and the project proponent wants confirmation that the activity is authorized by a NWP.
Preservation	4	11197	The removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions.
Re-establishment	4	11197	The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area.
Rehabilitation	4	11197	The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area.
Relatively Permanent Water (RPW)	5,	5,69	In the context of CWA jurisdiction post-*Rapanos*, a water body is "relatively permanent" if it flows year round or its flow is continuous at least "seasonally," (e.g., typically 3 months). Wetlands adjacent to a "relatively permanent" tributary are also jurisdictional if those wetlands directly abut such a tributary.
Relevant Reach	6	40	With respect to "significant nexus determinations," the "relevant reach" will include all tributary waters of the same order. Typically this will include the tributary and all adjacent wetlands reaching down stream from the project site to the confluence with the next tributary or upstream to a similar confluence.
Restoration	4	11197	The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: re-establishment and rehabilitation.
Riffle and pool complex	4	11197	Riffle and pool complexes are special aquatic sites under the CWA Section 404(b)(1) Guidelines. Riffle and pool complexes sometimes characterize steep gradient sections of streams. Such stream sections are recognizable by their hydraulic characteristics. The rapid movement of water over a course substrate in riffles results in a rough flow, a turbulent surface, and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles. Pools are characterized by a

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			slower stream velocity, a streaming flow, a smooth surface, and a finer substrate.
Riparian area	4	11197	Riparian areas are lands adjacent to streams, lakes, and estuarine-marine shorelines. Riparian areas are transitional between terrestrial and aquatic ecosystems, through which surface and subsurface hydrology connects water bodies with their adjacent uplands. Riparian areas provide a variety of ecological functions and services and help improve or maintain local water quality. (See general condition 20, in the NWP.)
River Miles	6	53	The flowing distance between the water bodies in question. Typically not a straight line; rather, the measurement is based on how far the water will travel from water body A to water body B. For example, the water in a meandering tributary will flow further than water flowing in a channelized tributary provided the two water bodies are the same distance apart in the landscape.
Shellfish seeding	4	11197	The placement of shellfish seed and/or suitable substrate to increase shellfish production. Shellfish seed consists of immature individual shellfish or individual shellfish attached to shells or shell fragments (i.e., spat on shell). Suitable substrate may consist of shellfish shells, shell fragments, or other appropriate materials placed into waters for shellfish habitat.
Significant Nexus	5	40	In the context of CWA jurisdiction post-*Rapanos*, a water body is considered to have a "significant nexus" with a traditional navigable water if its flow characteristics and functions in combination with the ecological and hydrological functions performed by all wetlands adjacent to such a tributary, affect the chemical, physical, and biological integrity of a downstream traditional navigable water.
Single and complete project	4	11197	The term "single and complete project" is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers. A single and complete project must have independent utility (see definition). For linear projects, a "single and complete project" is all crossings of a single water of the United States (i.e., a single water body) at a specific location. For linear projects crossing a single water body several times at separate and distant locations, each crossing is considered a single and complete project. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate water bodies, and crossings of such features cannot be considered separately.
Station Datum	9	NA	A fixed base elevation at a tide station to which all water level measurements are referred. The datum is unique to each station and is established at a lower elevation than the water is ever expected to reach. It is referenced to the primary bench mark at the station and is held constant regardless of changes to the water level gauge or tide staff. The datum of tabulation is most

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			often at the zero of the first tide staff installed.
Stormwater management	4	11197	Stormwater management is the mechanism for controlling stormwater runoff for the purposes of reducing downstream erosion, water quality degradation, and flooding and mitigating the adverse effects of changes in land use on the aquatic environment.
Stormwater management facilities	4	11197	Stormwater management facilities are those facilities, including but not limited to, stormwater retention and detention ponds and best management practices, which retain water for a period of time to control runoff and/or improve the quality (i.e., by reducing the concentration of nutrients, sediments, hazardous substances and other pollutants) of stormwater runoff.
Stream bed	4	11197	The substrate of the stream channel between the ordinary high water marks. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the streambed, but outside of the ordinary high water marks, are not considered part of the streambed.
Stream channelization	4	11197	The manipulation of a stream's course, condition, capacity, or location that causes more than minimal interruption of normal stream processes. A channelized stream remains a water of the United States.
Stream Order	NA	NA	A method of numbering streams as part of a drainage basin network. The smallest unbranched mapped tributary is called first order, the stream receiving the tributary is called second order, and so on.
Structure	4	11197	An object that is arranged in a definite pattern of organization. Examples of structures include, without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent mooring structure, power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other manmade obstacle or obstruction.
Tidal waters	7	N/A	The term "tidal waters" means those waters that rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by hydrologic, wind, or other effects.
Tidal wetland	7	N/A	A tidal wetland is a wetland (i.e., water of the United States) that is inundated by tidal waters. The definitions of a wetland and tidal waters can be found at 33 CFR 328.3(b) and 33 CFR 328.3(f), respectively. Tidal waters rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by other waters, wind, or other effects. Tidal wetlands are located channel-ward of the

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			high tide line, which is defined at 33 CFR 328.3(d).
Traditional Navigable Waters (TNW)	6	68	A "traditional navigable water" includes all the "navigable waters of the United States," defines in 33 CFR §329, and by numerous decisions of the Federal courts, plus all other waters that are navigable-in-fact. Per 33 CFR §329: Navigable waters of the United States are those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. A determination of navigability, once made, applies laterally over the entire surface of the waterbody, and is not extinguished by later actions or events which impede or destroy navigable capacity. The USACE is currently drafting new regulations defining TNWs.
Tributary	6	69	A "tributary," as defined in the *Rapanos* guidance document, means a natural, man-altered, or man-made water body that carries directly or indirectly into a traditional navigable water. For the purposes of determining significant nexus with a traditional navigable water, a "tributary" is the entire reach of the stream that is of the same order (i.e., from the point of confluence, where two lower order streams meet to form the tributary, downstream to the point such tributary enters a higher order stream).
Upland Plants (UPL)	1	14	Plants that occur rarely (estimated probability <1 percent) in wetlands, but occur almost always (estimated probability >99 percent) in non-wetlands under natural conditions.
Vegetated shallows	4	11197	Vegetated shallows are special aquatic sites under the CWA Section 404(b)(1) Guidelines. They are areas that are permanently inundated and under normal circumstances have rooted aquatic vegetation, such as sea grasses in marine and estuarine systems and a variety of vascular rooted plants in freshwater systems.
Waterbody	4	11197	For purposes of the NWPs, a waterbody is a jurisdictional water of the United States that, during a year with normal patterns of precipitation, has water flowing or standing above ground to the extent that an ordinary high water mark (OHWM) or other indicators of jurisdiction can be determined, as well as any wetland area (see 33 CFR 328.3(b)). If a jurisdictional wetland is adjacent--meaning bordering, contiguous, or neighboring--to a jurisdictional waterbody displaying an OHWM or other indicators of jurisdiction, that waterbody and its adjacent wetlands are considered together as a single aquatic unit (see 33 CFR 328.4(c)(2)). Examples of "waterbodies" include streams, rivers, lakes, ponds, and wetlands.
Waters of The United States	7	N/A	The term "waters of the United States" means: (1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; (2) All interstate waters including interstate wetlands;

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			(3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters: (i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or (ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or (iii) Which are used or could be used for industrial purpose by industries in interstate commerce; (4) All impoundments of waters otherwise defined as waters of the United States under the definition; (5) Tributaries of waters identified in paragraphs (a)(1)-(4) of this section; (6) The territorial seas; (7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a)(1)-(6) of this section, (Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA [other than cooling ponds as defined in 40 CFR 123.11(m) which also meet the criteria of this definition] are not waters of the United States.) and (8) Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the CWA, the final authority regarding CWA jurisdiction remains with the EPA.
Wetlands	1,2,7	N/A	The term "wetlands" means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. The criteria for determining wetlands is set forth in the USACE Wetlands Delineation Manual (1987) and relevant Regional Supplements (Arid West, December 2006)

Sources:
1. USACE *Wetlands Delineation Manual*, January 1987
2. USACE *Guidelines for Jurisdictional Determinations for Waters of the United States in the Arid Southwest*, June 2001
3. USACE *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region*, December 2006
4. FEDERAL REGISTER: Department of Defense; Department of the Army, Corps of Engineers, *Re-issuance of Nationwide Permits; Notice*, March 12, 2007
5. EPA/USACE Joint Memorandum: *Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States and Carabell v. United States*, (June 5, 2007)
6. USACE *Jurisdictional Delineation Form Instructional Guidebook*, May 30, 2007
7. Code of Federal Regulations (CFR): 33 CFR 328.3 *Definitions of Waters of the United States* and/or 33 CPR 329 *Definitions of Navigable Waters of the United States.*
8. USGS *Hydrologic Unit Maps, U.S. Geological Survey Water-Supply Paper 2294* (1994), by Paul R. Seaber, F.

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Term	Source	Page	Definition
	Paul Kapinos, and George L Knapp.		
9.	Center for Operational Oceanographic Products and Services.		

Appendix D:
Site Photographs

[PHOTO 1] (Facing East : View of the project from the west property boundary and shows most of project site, which is bound by a marina on the eastern boundary (At the approximate location of the furthest palm tree towards the left of the photograph). The photo was taken at 05:59 am at lower low tide (-0.2 feet) at 05:59 am.

[PHOTO 2] (Facing West): View of the project site looking toward the western property boundary. A dock and marina is located immediately west of the project site. The view is at lower low tide (-0.2 feet). A marbled godwit (*limosa fedoa*) is present in the center foreground.

Source: Michael Brandman Associates, 2007

[PHOTO 3] (Facing North) Photo taken during lower low tide. A sign indicates the presence of a storm drain outlet. Recreational craft are visible across the channel on Lido Island (to the left) and also moored within the channel (to the right).

[PHOTO 4] (Facing East) the Eastern property boundary is demarcated by a sea wall (center) which separates the beach (project site) from an existing off-site marina. Also visible in the photograph are the transect markers used to field verify tidal datum. The markers are faintly visible in the foreground as which stakes with red numbered headers. Exhibit 10 was generated by overlaying tidal datum on this photograph.

Source: Michael Brandman Associates, 2007

[PHOTO 5] (Facing North) A Close view of the transect markers (Transect 3) which were used to confirm tidal datum from a fixed reference point. Recreational boats present are anchored/moored in the far ground.

[PHOTO 6] (Facing East): A concrete pilon located in the west section of the project site. Mobile homes are border the beach to the right. A catamaran is also visible in the center far-right of the photograph.

Source: Michael Brandman Associates, 2007

[PHOTO 7]. (Facing Southeast) Barnacle and clams attached to the concrete wall marking the eastern property boundary. Invertebrates mostly occurred at or bellow the mean high water mark.

[PHOTO 8]. (Facing South) A small depression is located along the western property boundary. The soil profile within the depression was consistent with other soil-pits examined on the project, revealing a consists sandy matrix with no hydric soil indicators.

Source: Michael Brandman Associates, 2007

Appendix E:
Jurisdictional Determination Forms

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: _____

C. PROJECT LOCATION AND BACKGROUND INFORMATION: **Property Adjacent to "Lower Newport Bay"**

- The project is located in the southwestern portion of the City of Newport Beach in Orange County, California (see Exhibits 1-3). The project site encompasses approximately 10.45 acres and is located between Balboa Boulevard and Newport Bay and between 15th Street on the east and 19th Street on the west. Major arterial access is provided along Balboa Boulevard with secondary access to the project site along 15th Street, 18th Street, and 19th Street. Regional freeway access to the site is provided by the Costa Mesa Freeway (SR 55) and the San Joaquin Hills Transportation Corridor (SR 73).
- The portion of the property immediately adjacent to Lower Newport Bay is presently a public beach.
- Lower Newport Bay.is immediately is a nvaigable water with direct connectivtiy to the Pacific Ocean.

State: **CA** County/parish/borough: **Orange** City: **Newport Beach**
Center coordinates of site (lat/long in degree decimal format): **33.608503°N and -117.923843°W**.
Universal Transverse Mercator:
Name of nearest waterbody: **Lower Newport Bay, Pacific Ocean**
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: **Lower Newport Bay, Pacific Ocean**
Name of watershed or Hydrologic Unit Code (HUC): HUC = Newport Bay Waershed (18070204), HSA = Newport Bay (801.14)

☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☐ Office (Desk) Determination. Date: _____
☐ Field Determination. Date(s): _____

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **"Are"** "*navigable waters of the U.S.*" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]

☒ Waters subject to the ebb and flow of the tide.
☒ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain:

The project site includes portions of the Lower Newport Bay extending from 16th Street extending westward to 19th Street. The onsite reach is located at the junction of the Rhine Channel, Lido Peninsula Channel, and Mid Channel in the southwestern portion of bay. Existing Marinas are located immediately to the East and west of the project site. Similarly, boat moorings can be observed in the mid-channel from the project site. Boat traffic is regularly seen in the waters extending outward from the project site, and the beach is sometimes used as a launching point for small recreational water craft such as kayaks, canoes, and catamaran. Furthermore, the Lower Newport Bay is directly connected to the Pacific Ocean, and regularly facilitates recreational boating/sailing to other states and foreign waters such as the territorial waters of Mexico.

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **"Are"** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. Waters of the U.S.

a. Indicate presence of waters of U.S. in review area (check all that apply): [1]

☒ TNWs, including territorial seas
☐ Wetlands adjacent to TNWs
☐ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
☐ Non-RPWs that flow directly or indirectly into TNWs
☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
☐ Impoundments of jurisdictional waters
☐ Isolated (interstate or intrastate) waters, including isolated wetlands

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).

b. Identify (estimate) size of waters of the U.S. in the review area:
Non-wetland waters: 1,378 linear feet: width _____ (ft) and/or 0.76 acres.
Wetlands: **none** acres.

c. Limits (boundaries) of jurisdiction based on:
Elevation of established OHWM (if known): _____ Feet.

2. Non-regulated waters/wetlands (check if applicable):[3]

☐ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain:

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW
Identify TNW:
Lower Newport Bay
Summarize rationale supporting determination:
See section II(a)

2. Wetland adjacent to TNW
Summarize rationale supporting conclusion that wetland is "adjacent":
The adjacent sandy beach does not meet USACE criteria for wetlands because it lacks both the presence of hydric soils and hydrophytes.

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:
Watershed size (Acres): _____
Drainage area (Acres): _____
Average annual rainfall (Inches): _____
Average annual snowfall (Inches): _____

[3] Supporting documentation is presented in Section III.F.
[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

(ii) Physical Characteristics:

(a) Relationship with TNW:

☐ Tributary flows directly into TNW.

☐ Tributary flows through **1** tributaries before entering TNW.

Project waters are _____ **(or less)** river miles from TNW ( ).
Project waters are _____ **(or less)** river miles from RPW ( ).
Project waters are _____ **(or less)** aerial (straight) miles from TNW ( ).
Project waters are _ **(or less)** aerial (straight) miles from RPW ( ).
Project waters cross or serve as state boundaries. Explain:

Identify flow route to TNW[5]:

Tributary stream order, if known: .

(b) General Tributary Characteristics (check all that apply):

Tributary is: ☐ Natural
☐ Artificial (man-made). Explain: _____
☐ Manipulated (man-altered). Explain: _____

Tributary properties with respect to top of bank (estimate):
Average width: _____feet
Average depth: _____ feet
Average side slopes: _____

Primary tributary substrate composition (check all that apply):

☐ Silts	☐ Sands	☐ Concrete
☐ Cobbles	☐ Gravel	☐ Muck
☐ Bedrock	☐ Vegetation. .	
☐ Other. Explain: .		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. _____ Explain:

Tributary geometry: _____
Tributary gradient (approximate average slope): _____

(c) Flow:

Tributary provides for:
Estimate average number of flow events in review area/year:
Describe flow regime:

Other information on duration and volume:.

Surface flow is: _____.
Characteristics:

Subsurface flow: . Explain findings: .
☐ Dye (or other) test performed:

Tributary has (check all that apply):
☐ Bed and banks
☐ OHWM[6] (check all indicators that apply):

☐ clear, natural line impressed on the bank	☐ the presence of litter and debris
☐ changes in the character of soil	☐ destruction of terrestrial vegetation
☐ shelving	☐ the presence of wrack line
☐ vegetation matted down, bent, or absent	☐ sediment sorting
☐ leaf litter disturbed or washed away	☐ scour
☐ sediment deposition	☐ multiple observed or predicted flow events
☐ water staining	☐ abrupt change in plant community

[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.
[6] A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.

☐ other (list): _____
☐ Discontinuous OHWM.[7] Explain: _____

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

☒ High Tide Line indicated by:
- ☐ oil or scum line along shore objects
- ☐ fine shell or debris deposits (foreshore)
- ☐ physical markings/characteristics
- ☐ tidal gauges
- ☐ other (list): _____

☒ Mean High Water Mark indicated by:
- ☐ survey to available datum;
- ☐ physical markings;
- ☐ vegetation lines/changes in vegetation types.

(iii) Chemical Characteristics:

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain:

Identify specific pollutants, if known:

(iv) Biological Characteristics. Channel supports (check all that apply):

- ☐ Riparian corridor. Characteristics (type, average width): _____
- ☐ Wetland fringe. Characteristics: _____
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: _____
  - ☐ Fish/spawn areas. Explain findings: _____
  - ☐ Other environmentally-sensitive species. Explain findings: _____
  - ☐ Aquatic/wildlife diversity. Explain findings: _____

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:
Properties:
Wetland size: _____ acres
Wetland type: _____ Explain: .
Wetland quality: _____. Explain:
Project wetlands cross or serve as state boundaries. Explain:

(b) General Flow Relationship with Non-TNW:
Flow is: _____ . Explain:

Surface flow is:
Characteristics:

Subsurface flow: _____ . Explain findings:
☐ Dye (or other) test performed:.

(c) Wetland Adjacency Determination with Non-TNW:
☐ Directly abutting
☐ Not directly abutting
- ☐ Discrete wetland hydrologic connection. Explain: _____
- ☐ Ecological connection. Explain: _____
- ☐ Separated by berm/barrier. Explain: _____

(d) Proximity (Relationship) to TNW
Project wetlands are _____ river miles from TNW.
Project waters are _____ aerial (straight) miles from TNW.
Flow is from: _____
Estimate approximate location of wetland as within the floodplain.

(ii) Chemical Characteristics:

[7]Ibid.

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain:

Identify specific pollutants, if known:

(iii) Biological Characteristics. Wetland supports (check all that apply):

- ☐ Riparian buffer. Characteristics (type, average width): _____
- ☐ Vegetation type/percent cover. Explain: _____
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: _____
  - ☐ Fish/spawn areas. Explain findings: _____
  - ☐ Other environmentally-sensitive species. Explain findings: _____
  - ☐ Aquatic/wildlife diversity. Explain findings: _____

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis:
Approximately (_____) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Description (of Wetland)	Directly abuts? (Y/N)	Size (in acres)
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Summarize overall biological, chemical and physical functions being performed: .

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW? _____
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW? _____
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs? _____.
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW? _____

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs. Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:

2. Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs. Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   - ☐ TNWs: _____ linear feet, width _____ (ft), Or, _____ acres.
   - ☐ Wetlands adjacent to TNWs: _____ acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   - ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial:
   - ☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally:

   Provide estimates for jurisdictional waters in the review area (check all that apply):
   - ☐ Tributary waters: _____ linear feet**,** width _____ (ft).
   - ☐ Other non-wetland waters: _____ acres.
     Identify type(s) of waters:

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
   - ☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional waters within the review area (check all that apply):
   - ☐ Tributary waters: _____ linear feet,width: _____ (ft).
   - ☐ Other non-wetland waters: _____ acres.
     Identify type(s) of waters: **.**

Description	Type	Linear feet width (ft)	Size (in acres)
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
   - ☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
     - ☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: **.**

     - ☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

   Provide acreage estimates for jurisdictional wetlands in the review area: _____ acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
   - ☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

   Provide acreage estimates for jurisdictional wetlands in the review area: _____ acres.

[8]See Footnote # 3.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
   ☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional wetlands in the review area: _____ acres.

7. **Impoundments of jurisdictional waters.**[9]
   As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
   ☐ Demonstrate that impoundment was created from "waters of the U.S.," or
   ☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
   ☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]

☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: _____
☐ Other factors. Explain: _____

Identify water body and summarize rationale supporting determination: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: _____ linear feet, width _____ (ft).
☐ Other non-wetland waters: _____ acres.
   Identify type(s) of waters: _____
☐ Wetlands: _____ acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):

☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
   ☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain:
☐ Other: (explain, if not covered above):

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): _____ linear feet _____ width (ft).
☐ Lakes/ponds: _____ acres.
☐ Other non-wetland waters: _____ acres. List type of aquatic resource: .
☐ Wetlands: _____ acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): _____ linear feet, width _____ (ft).
☐ Lakes/ponds: _____ acres.
☐ Other non-wetland waters: _____ acres. List type of aquatic resource: _____
☐ Wetlands: _____ acres.

SECTION IV: DATA SOURCES.

[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.*

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):

- ☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: _____
- ☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  - ☐ Office concurs with data sheets/delineation report.
  - ☐ Office does not concur with data sheets/delineation report.
- ☐ Data sheets prepared by the Corps: _____
- ☐ Corps navigable waters' study: _____
- ☒ U.S. Geological Survey Hydrologic Atlas: _____
  - ☐ USGS NHD data.
  - ☒ USGS 8 and 12 digit HUC maps.
- ☒ U.S. Geological Survey map(s). Cite scale & quad name: _____
- ☒ USDA Natural Resources Conservation Service Soil Survey.
  Citation: **USDA NRCS ca678 Soils (2008)**
- ☐ National wetlands inventory map(s). Cite name: _____
- ☐ State/Local wetland inventory map(s): _____
- ☒ FEMA/FIRM maps: .
- ☒ 100-year Floodplain Elevation is: _____ (National Geodectic Vertical Datum of 1929)
- ☒ Photographs: ☒ Aerial (Name & Date): **Google Earth Pro Aerial (2009)**
  or ☐ Other (Name & Date): _____
- ☐ Previous determination(s). File no. and date of response letter: _____
- ☐ Applicable/supporting case law: _____
- ☐ Applicable/supporting scientific literature: _____
- ☐ Other information (please specify): Hydrologic calculations.

B. ADDITIONAL COMMENTS TO SUPPORT JD:

Appendix F:
Wetlands Data Sheets

WETLAND DETERMINATION DATA FORM - Arid West Region

Project Site: **Marina Park** City/County: **Newport Beach/Orange** Sampling Date: **7/10/2009**

Applicant/Owner: **City of Newport Beach** State: **CA** Sampling Point: **Transect 3**

Investigator(s): **Paul Mead** Section, Township, Range: **Newport S33, T6S, R10W**

Landform (hillslope, terrace,etc): **Beasch / Hillslope (7.2%)** Local relief (concave, conves, none): **slope** Slope (%) **7.2**

Subregion (LRR): **LRR C** Lat: **33.608503 N** Long: **-117.923843 W** Datum:

Soil Map Unit Name: **Sandy Beach** NWI Classification:

Are Climatic / hydrological conditions on the site typical this time of Year? Yes: ☐ No: ☐ (If no, explain in Remarks.)

Are: Vegetation: ☐ Soil: ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are: Vegetation: ☐ Soil: ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☑
Hydric Soil Present?	Yes ☐	No ☑
Wetland Hydrology Present?	Yes ☑	No ☐

Is the Sampled Area within a Wetland? Yes ☐ No ☑

Remarks:

Transect 3 includes seven soil pit samples marking the following tidal datum collected at Lower low tide (-0.2' below MLLW) on 07/11/2009. (1) MLW (2) MTL (3) MHW (4) MWWH, (5) Field Observed high water mark, (6) HTL, (7) HOWL. (See Exhibit 10). No wetlan

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:			
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum: % Cover of Biotic Crust:

Dominance Test worksheet:

Number of Dominant Species That are OBL FACW, or FAC: (A)

Total Number of Dominant Species Across all Strata: (B)

Percent of Dominant Species That are OBL, FACW, or FAC: (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicatore:

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicator if hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks:

No vegeation was present on the surveyed area (Sandy Beach)

SOIL

Sampling Point: **Transect 3**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type	Redox Features Loc	Redox Features %	Texture	Remarks
0-18"+	NA	NA						Sand	Sand

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix [2] Location: PL=Pore Lining, RC=Root Channel, M=Matrixc

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depresssions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☐ **No** ☑

Remarks

Sand. No evidence of hydric indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation on Aerial Imagery (B7)
- ☐ Water-stained Leaves (B8)
- ☐ Biotic Crust (B10)
- ☐ Aquatic Invertebrates (B11)
- ☐ Crayfish Burows (B12)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C2)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soil (C6)
- ☐ Muck Surface (C7)
- ☐ Saturation on Aerial Imagery (C8)
- ☐ Shallow Aquitard (D4)
- ☑ Other (Explain in Remarks)

Secondary Indicators (2 or more is required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B9)
- ☐ Dry Season Water Table (C3)
- ☐ Salt Depostis (C5)
- ☐ Mud Casts (C9)
- ☐ FAC-Neutral Test (D7)

Field Observations:

Surface Water Present?	**Yes**	☐	**No**	☑	**Depth (inches):**	
Water Table Present?	**Yes**	☐	**No**	☑	**Depth (inches):**	
Saturation Present? (includes capillary fringe)	**Yes**	☑	**No**	☐	**Depth (inches):**	4-18"

Wetland Hydrology Present? **Yes** ☑ **No** ☐

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

The evaluation was made using datum from NOAA

Remarks:

Seven soil pits were excavated along a transect marked with respect to establhsed tidal Datum.

Appendix G:
Supporting Data

Tides for Newport Bay Entrance, Corona del Mar starting with July 1, 2009.

Day		High /Low	Tide Time	Height Feet	Sunrise Sunset	Moon	Time	% Moon Visible
7/1								
W	1	Low	12:29 AM	0.7	5:45 AM	Set	1:18 AM	64
	1	High	6:37 AM	3.0	8:06 PM	Rise	3:29 PM	
	1	Low	11:04 AM	2.1				
	1	High	5:58 PM	5.5				
7/2								
Th	2	Low	1:28 AM	0.2	5:46 AM	Set	1:53 AM	74
	2	High	7:59 AM	3.1	8:06 PM	Rise	4:29 PM	
	2	Low	12:02 PM	2.4				
	2	High	6:43 PM	5.6				
7/3								
F	3	Low	2:15 AM	-0.2	5:46 AM	Set	2:32 AM	82
	3	High	8:57 AM	3.3	8:06 PM	Rise	5:27 PM	
	3	Low	12:54 PM	2.5				
	3	High	7:24 PM	5.7				
7/4								
Sa	4	Low	2:54 AM	-0.4	5:47 AM	Set	3:17 AM	89
	4	High	9:39 AM	3.4	8:05 PM	Rise	6:22 PM	
	4	Low	1:40 PM	2.5				
	4	High	8:02 PM	5.8				
7/5								
Su	5	Low	3:29 AM	-0.6	5:47 AM	Set	4:06 AM	94
	5	High	10:11 AM	3.5	8:05 PM	Rise	7:11 PM	
	5	Low	2:19 PM	2.5				
	5	High	8:37 PM	5.9				
7/6								
M	6	Low	4:01 AM	-0.6	5:48 AM	Set	5:00 AM	97
	6	High	10:40 AM	3.6	8:05 PM	Rise	7:56 PM	
	6	Low	2:54 PM	2.5				
	6	High	9:11 PM	5.9				
7/7								
Tu	7	Low	4:31 AM	-0.6	5:48 AM	Set	5:56 AM	99
	7	High	11:07 AM	3.7	8:05 PM	Rise	8:34 PM	
	7	Low	3:29 PM	2.4				
	7	High	9:43 PM	5.9				
7/8								
W	8	Low	5:00 AM	-0.6	5:49 AM	Set	6:54 AM	99
	8	High	11:34 AM	3.7	8:05 PM	Rise	9:08 PM	
	8	Low	4:04 PM	2.4				
	8	High	10:15 PM	5.7				
7/9								
Th	**9**	**Low**	**5:29 AM**	**-0.4**	**5:49 AM**	**Set**	**7:51 AM**	**97**
	9	**High**	**12:03 PM**	**3.8**	**8:04 PM**	**Rise**	**9:38 PM**	
	9	**Low**	**4:41 PM**	**2.4**				
	9	**High**	**10:47 PM**	**5.5**				
7/10 (SURVEY DATE)								
F	**10**	**Low**	**5:57 AM**	**-0.2**	**5:50 AM**	**Set**	**8:48 AM**	**94**
	10	**High**	**12:33 PM**	**3.9**	**8:04 PM**	**Rise**	**10:05 PM**	
	10	**Low**	**5:22 PM**	**2.4**				
	10	**High**	**11:20 PM**	**5.1**				
7/11								
Sa	11	Low	6:24 AM	0.1	5:50 AM	Set	9:44 AM	89
	11	High	1:04 PM	4.0	8:04 PM	Rise	10:31 PM	

	11	Low	6:10 PM	2.4					
	11	High	11:56 PM	4.6					
7/12									
Su	12	Low	6:52 AM	0.5	5:51 AM	Set	10:40 AM		82
	12	High	1:38 PM	4.2	8:03 PM	Rise	10:57 PM		
	12	Low	7:08 PM	2.4					
7/13									
M	13	High	12:38 AM	4.0	5:51 AM	Set	11:37 AM		74
	13	Low	7:20 AM	0.9	8:03 PM	Rise	11:25 PM		
	13	High	2:14 PM	4.4					
	13	Low	8:24 PM	2.3					
7/14									
Tu	14	High	1:36 AM	3.4	5:52 AM	Set	12:37 PM		65
	14	Low	7:50 AM	1.4	8:03 PM	Rise	11:54 PM		
	14	High	2:57 PM	4.6					
	14	Low	9:57 PM	1.9					
7/15									
W	15	High	3:11 AM	2.8	5:53 AM	Set	1:40 PM		55
	15	Low	8:28 AM	1.9	8:02 PM				
	15	High	3:48 PM	4.9					
	15	Low	11:28 PM	1.3					
7/16									
Th	16	High	5:28 AM	2.6	5:53 AM	Rise	12:28 AM		45
	16	Low	9:23 AM	2.3	8:02 PM	Set	2:46 PM		
	16	High	4:44 PM	5.3					
7/17									
F	17	Low	12:36 AM	0.6	5:54 AM	Rise	1:09 AM		34
	17	High	7:14 AM	2.8	8:01 PM	Set	3:54 PM		
	17	Low	10:40 AM	2.5					
	17	High	5:42 PM	5.8					
7/18									
Sa	18	Low	1:29 AM	-0.2	5:54 AM	Rise	1:58 AM		24
	18	High	8:14 AM	3.2	8:01 PM	Set	5:03 PM		
	18	Low	11:58 AM	2.5					
	18	High	6:39 PM	6.3					
7/19									
Su	19	Low	2:15 AM	-0.8	5:55 AM	Rise	2:57 AM		14
	19	High	8:56 AM	3.5	8:00 PM	Set	6:07 PM		
	19	Low	1:04 PM	2.4					
	19	High	7:32 PM	6.7					
7/20									
M	20	Low	2:59 AM	-1.3	5:56 AM	Rise	4:05 AM		7
	20	High	9:34 AM	3.8	8:00 PM	Set	7:05 PM		
	20	Low	2:01 PM	2.2					
	20	High	8:22 PM	7.1					
7/21									
Tu	21	Low	3:40 AM	-1.6	5:56 AM	Rise	5:19 AM		2
	21	High	10:11 AM	4.1	7:59 PM	Set	7:55 PM		
	21	Low	2:55 PM	1.9					
	21	High	9:11 PM	7.2					
7/22									
W	22	Low	4:21 AM	-1.6	5:57 AM	Rise	6:35 AM		0
	22	High	10:49 AM	4.4	7:59 PM	Set	8:37 PM		
	22	Low	3:47 PM	1.6					
	22	High	9:59 PM	7.0					
7/23									
Th	23	Low	5:00 AM	-1.4	5:58 AM	Rise	7:49 AM		0
	23	High	11:27 AM	4.7	7:58 PM	Set	9:13 PM		

	23	Low	4:40 PM	1.4					
	23	High	10:47 PM	6.5					
7/24									
F	24	Low	5:39 AM	-1.0	5:58 AM	Rise	9:00 AM		4
	24	High	12:07 PM	4.9	7:57 PM	Set	9:46 PM		
	24	Low	5:36 PM	1.4					
	24	High	11:37 PM	5.8					
7/25									
Sa	25	Low	6:17 AM	-0.4	5:59 AM	Rise	10:08 AM		11
	25	High	12:48 PM	5.0	7:57 PM	Set	10:17 PM		
	25	Low	6:37 PM	1.4					
7/26									
Su	26	High	12:29 AM	5.0	6:00 AM	Rise	11:14 AM		19
	26	Low	6:54 AM	0.3	7:56 PM	Set	10:47 PM		
	26	High	1:32 PM	5.1					
	26	Low	7:47 PM	1.4					
7/27									
M	27	High	1:30 AM	4.0	6:01 AM	Rise	12:18 PM		29
	27	Low	7:32 AM	1.1	7:55 PM	Set	11:19 PM		
	27	High	2:21 PM	5.1					
	27	Low	9:11 PM	1.4					
7/28									
Tu	28	High	2:52 AM	3.2	6:01 AM	Rise	1:21 PM		39
	28	Low	8:13 AM	1.8	7:55 PM	Set	11:53 PM		
	28	High	3:17 PM	5.1					
	28	Low	10:47 PM	1.2					
7/29									
W	29	High	4:58 AM	2.8	6:02 AM	Rise	2:22 PM		50
	29	Low	9:04 AM	2.4	7:54 PM				
	29	High	4:20 PM	5.1					
7/30									
Th	30	Low	12:13 AM	0.8	6:03 AM	Set	12:31 AM		60
	30	High	7:10 AM	3.0	7:53 PM	Rise	3:21 PM		
	30	Low	10:24 AM	2.7					
	30	High	5:25 PM	5.2					
7/31									
F	31	Low	1:15 AM	0.4	6:03 AM	Set	1:14 AM		69
	31	High	8:19 AM	3.3	7:52 PM	Rise	4:17 PM		
	31	Low	11:51 AM	2.9					
	31	High	6:23 PM	5.3					
8/1									
Sa	1	Low	2:01 AM	0.0	6:04 AM	Set	2:02 AM		78
	1	High	8:56 AM	3.5	7:51 PM	Rise	5:09 PM		
	1	Low	12:54 PM	2.8					
	1	High	7:11 PM	5.5					
8/2									
Su	2	Low	2:38 AM	-0.2	6:05 AM	Set	2:55 AM		85
	2	High	9:23 AM	3.7	7:50 PM	Rise	5:54 PM		
	2	Low	1:39 PM	2.6					
	2	High	7:51 PM	5.7					
8/3									
M	3	Low	3:09 AM	-0.3	6:05 AM	Set	3:50 AM		91
	3	High	9:45 AM	3.8	7:50 PM	Rise	6:35 PM		
	3	Low	2:16 PM	2.5					
	3	High	8:26 PM	5.8					
8/4									
Tu	4	Low	3:37 AM	-0.4	6:06 AM	Set	4:47 AM		95
	4	High	10:05 AM	3.9	7:49 PM	Rise	7:10 PM		

	4	Low	2:48 PM	2.3					
	4	High	8:59 PM	5.9					
8/5									
W	5	Low	4:02 AM	-0.4	6:07 AM	Set	5:45 AM		98
	5	High	10:26 AM	4.1	7:48 PM	Rise	7:41 PM		
	5	Low	3:21 PM	2.1					
	5	High	9:29 PM	5.9					
8/6									
Th	6	Low	4:26 AM	-0.3	6:08 AM	Set	6:42 AM		99
	6	High	10:48 AM	4.2	7:47 PM	Rise	8:09 PM		
	6	Low	3:54 PM	1.9					
	6	High	10:00 PM	5.7					
8/7									
F	7	Low	4:50 AM	-0.1	6:08 AM	Set	7:38 AM		99
	7	High	11:11 AM	4.4	7:46 PM	Rise	8:36 PM		
	7	Low	4:29 PM	1.8					
	7	High	10:31 PM	5.4					
8/8									
Sa	8	Low	5:13 AM	0.2	6:09 AM	Set	8:35 AM		96
	8	High	11:35 AM	4.5	7:45 PM	Rise	9:02 PM		
	8	Low	5:07 PM	1.8					
	8	High	11:04 PM	5.0					
8/9									
Su	9	Low	5:36 AM	0.5	6:10 AM	Set	9:32 AM		92
	9	High	12:01 PM	4.7	7:44 PM	Rise	9:29 PM		
	9	Low	5:50 PM	1.7					
	9	High	11:40 PM	4.5					
8/10									
M	10	Low	5:58 AM	1.0	6:10 AM	Set	10:31 AM		86
	10	High	12:29 PM	4.8	7:43 PM	Rise	9:57 PM		
	10	Low	6:41 PM	1.7					
8/11									
Tu	11	High	12:23 AM	3.8	6:11 AM	Set	11:31 AM		78
	11	Low	6:21 AM	1.4	7:42 PM	Rise	10:29 PM		
	11	High	1:04 PM	4.9					
	11	Low	7:48 PM	1.7					
8/12									
W	12	High	1:24 AM	3.2	6:12 AM	Set	12:35 PM		69
	12	Low	6:45 AM	1.9	7:41 PM	Rise	11:06 PM		
	12	High	1:48 PM	5.0					
	12	Low	9:21 PM	1.5					
8/13									
Th	13	High	3:18 AM	2.7	6:13 AM	Set	1:41 PM		59
	13	Low	7:13 AM	2.4	7:40 PM	Rise	11:50 PM		
	13	High	2:49 PM	5.1					
	13	Low	11:03 PM	1.0					
8/14									
F	14	High	4:07 PM	5.3	6:13 AM	Set	2:47 PM		49
	14				7:39 PM				
8/15									
Sa	15	Low	12:20 AM	0.4	6:14 AM	Rise	12:43 AM		37
	15	High	7:32 AM	3.1	7:38 PM	Set	3:52 PM		
	15	Low	10:32 AM	2.9					
	15	High	5:23 PM	5.7					
8/16									
Su	16	Low	1:14 AM	-0.2	6:15 AM	Rise	1:44 AM		27
	16	High	8:05 AM	3.5	7:36 PM	Set	4:51 PM		

	16	Low	12:05 PM	2.6					
	16	High	6:28 PM	6.2					
8/17									
M	17	Low	1:59 AM	-0.7	6:15 AM	Rise	2:54 AM		17
	17	High	8:35 AM	3.9	7:35 PM	Set	5:43 PM		
	17	Low	1:10 PM	2.3					
	17	High	7:24 PM	6.6					
8/18									
Tu	18	Low	2:39 AM	-1.1	6:16 AM	Rise	4:08 AM		9
	18	High	9:05 AM	4.3	7:34 PM	Set	6:27 PM		
	18	Low	2:04 PM	1.8					
	18	High	8:15 PM	6.9					
8/19									
W	19	Low	3:16 AM	-1.2	6:17 AM	Rise	5:22 AM		3
	19	High	9:37 AM	4.7	7:33 PM	Set	7:06 PM		
	19	Low	2:54 PM	1.3					
	19	High	9:02 PM	6.9					
8/20									
Th	20	Low	3:52 AM	-1.1	6:18 AM	Rise	6:35 AM		0
	20	High	10:09 AM	5.1	7:32 PM	Set	7:41 PM		
	20	Low	3:42 PM	0.9					
	20	High	9:49 PM	6.6					
8/21									
F	21	Low	4:27 AM	-0.7	6:18 AM	Rise	7:45 AM		0
	21	High	10:43 AM	5.4	7:31 PM	Set	8:13 PM		
	21	Low	4:31 PM	0.7					
	21	High	10:35 PM	6.0					
8/22									
Sa	22	Low	5:01 AM	-0.2	6:19 AM	Rise	8:53 AM		3
	22	High	11:18 AM	5.5	7:29 PM	Set	8:45 PM		
	22	Low	5:22 PM	0.7					
	22	High	11:22 PM	5.3					
8/23									
Su	23	Low	5:33 AM	0.4	6:20 AM	Rise	10:00 AM		8
	23	High	11:54 AM	5.6	7:28 PM	Set	9:17 PM		
	23	Low	6:16 PM	0.7					
8/24									
M	24	High	12:14 AM	4.5	6:20 AM	Rise	11:06 AM		15
	24	Low	6:05 AM	1.2	7:27 PM	Set	9:51 PM		
	24	High	12:32 PM	5.5					
	24	Low	7:18 PM	0.9					
8/25									
Tu	25	High	1:15 AM	3.7	6:21 AM	Rise	12:10 PM		24
	25	Low	6:36 AM	1.9	7:26 PM	Set	10:29 PM		
	25	High	1:15 PM	5.3					
	25	Low	8:35 PM	1.1					
8/26									
W	26	High	2:47 AM	3.1	6:22 AM	Rise	1:12 PM		34
	26	Low	7:05 AM	2.5	7:24 PM	Set	11:11 PM		
	26	High	2:10 PM	5.0					
	26	Low	10:12 PM	1.1					
8/27									
Th	27	High	5:42 AM	3.0	6:22 AM	Rise	2:10 PM		44
	27	Low	7:46 AM	2.9	7:23 PM	Set	11:58 PM		
	27	High	3:26 PM	4.8					
	27	Low	11:45 PM	0.9					
8/28									
F	28	High	7:37 AM	3.3	6:23 AM	Rise	3:04 PM		54
	28	Low	10:13 AM	3.2	7:22 PM				

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    28     High   4:54 PM     4.8
8/29
Sa  29      Low  12:49 AM     0.6   6:24 AM     Set 12:49 AM      63
    29     High   8:06 AM     3.6   7:21 PM    Rise  3:52 PM
    29      Low  12:00 PM     3.1
    29     High   6:04 PM     5.0
8/30
Su  30      Low   1:33 AM     0.3   6:24 AM     Set  1:44 AM      72
    30     High   8:26 AM     3.8   7:19 PM    Rise  4:34 PM
    30      Low  12:55 PM     2.8
    30     High   6:55 PM     5.2
8/31
M   31      Low   2:07 AM     0.1   6:25 AM     Set  2:40 AM      80
    31     High   8:44 AM     4.0   7:18 PM    Rise  5:10 PM
    31      Low   1:33 PM     2.5
    31     High   7:35 PM     5.4
9/1
Tu   1      Low   2:34 AM     0.0   6:26 AM     Set  3:37 AM      87
     1     High   9:01 AM     4.2   7:17 PM    Rise  5:43 PM
     1      Low   2:06 PM     2.2
     1     High   8:09 PM     5.6
9/2
W    2      Low   2:59 AM     0.0   6:26 AM     Set  4:35 AM      93
     2     High   9:19 AM     4.4   7:15 PM    Rise  6:12 PM
     2      Low   2:36 PM     1.8
     2     High   8:41 PM     5.7
9/3
Th   3      Low   3:22 AM     0.1   6:27 AM     Set  5:31 AM      97
     3     High   9:37 AM     4.6   7:14 PM    Rise  6:40 PM
     3      Low   3:07 PM     1.5
     3     High   9:12 PM     5.6
9/4
F    4      Low   3:43 AM     0.2   6:28 AM     Set  6:28 AM      99
     4     High   9:57 AM     4.8   7:13 PM    Rise  7:06 PM
     4      Low   3:40 PM     1.3
     4     High   9:44 PM     5.4
9/5
Sa   5      Low   4:05 AM     0.4   6:29 AM     Set  7:26 AM      99
     5     High  10:18 AM     5.1   7:11 PM    Rise  7:33 PM
     5      Low   4:14 PM     1.1
     5     High  10:17 PM     5.1
9/6
Su   6      Low   4:27 AM     0.7   6:29 AM     Set  8:24 AM      98
     6     High  10:41 AM     5.2   7:10 PM    Rise  8:01 PM
     6      Low   4:51 PM     0.9
     6     High  10:53 PM     4.7
9/7
M    7      Low   4:48 AM     1.1   6:30 AM     Set  9:25 AM      94
     7     High  11:06 AM     5.4   7:09 PM    Rise  8:32 PM
     7      Low   5:33 PM     0.9
     7     High  11:34 PM     4.1
9/8
Tu   8      Low   5:10 AM     1.6   6:31 AM     Set 10:28 AM      89
     8     High  11:35 AM     5.4   7:07 PM    Rise  9:07 PM
     8      Low   6:24 PM     0.9

9/9
W    9     High  12:26 AM     3.5   6:31 AM     Set 11:33 AM      82
     9      Low   5:31 AM     2.0   7:06 PM    Rise  9:48 PM
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	9	High	12:11 PM	5.4					
	9	Low	7:30 PM	1.0					
9/10									
Th	10	High	1:44 AM	3.0	6:32 AM	Set	12:38 PM		73
	10	Low	5:53 AM	2.5	7:05 PM	Rise	10:37 PM		
	10	High	12:59 PM	5.3					
	10	Low	9:00 PM	1.0					
9/11									
F	11	High	2:10 PM	5.2	6:33 AM	Set	1:42 PM		63
	11	Low	10:40 PM	0.7	7:03 PM	Rise	11:34 PM		
9/12									
Sa	12	High	3:46 PM	5.2	6:33 AM	Set	2:41 PM		52
	12	Low	11:54 PM	0.3	7:02 PM				
9/13									
Su	13	High	7:10 AM	3.6	6:34 AM	Rise	12:39 AM		41
	13	Low	10:59 AM	3.0	7:00 PM	Set	3:34 PM		
	13	High	5:14 PM	5.5					
9/14									
M	14	Low	12:47 AM	-0.2	6:35 AM	Rise	1:49 AM		30
	14	High	7:35 AM	4.0	6:59 PM	Set	4:20 PM		
	14	Low	12:17 PM	2.5					
	14	High	6:22 PM	5.9					
9/15									
Tu	15	Low	1:30 AM	-0.5	6:35 AM	Rise	3:01 AM		19
	15	High	8:02 AM	4.5	6:58 PM	Set	5:00 PM		
	15	Low	1:14 PM	1.9					
	15	High	7:18 PM	6.1					
9/16									
W	16	Low	2:07 AM	-0.6	6:36 AM	Rise	4:12 AM		11
	16	High	8:31 AM	5.0	6:56 PM	Set	5:36 PM		
	16	Low	2:03 PM	1.2					
	16	High	8:08 PM	6.2					
9/17									
Th	17	Low	2:42 AM	-0.5	6:37 AM	Rise	5:22 AM		4
	17	High	9:00 AM	5.4	6:55 PM	Set	6:09 PM		
	17	Low	2:49 PM	0.7					
	17	High	8:55 PM	6.1					
9/18									
F	18	Low	3:15 AM	-0.2	6:37 AM	Rise	6:30 AM		1
	18	High	9:30 AM	5.8	6:54 PM	Set	6:40 PM		
	18	Low	3:34 PM	0.2					
	18	High	9:41 PM	5.8					
9/19									
Sa	19	Low	3:47 AM	0.2	6:38 AM	Rise	7:38 AM		0
	19	High	10:01 AM	6.0	6:52 PM	Set	7:13 PM		
	19	Low	4:19 PM	0.0					
	19	High	10:27 PM	5.3					
9/20									
Su	20	Low	4:17 AM	0.8	6:39 AM	Rise	8:45 AM		1
	20	High	10:32 AM	6.1	6:51 PM	Set	7:47 PM		
	20	Low	5:05 PM	0.0					
	20	High	11:14 PM	4.7					
9/21									
M	21	Low	4:46 AM	1.4	6:39 AM	Rise	9:51 AM		5
	21	High	11:04 AM	6.0	6:49 PM	Set	8:24 PM		

	21	Low	5:54 PM	0.2					
9/22									
Tu	22	High	12:06 AM	4.0	6:40 AM	Rise	10:56 AM		11
	22	Low	5:14 AM	1.9	6:48 PM	Set	9:05 PM		
	22	High	11:38 AM	5.7					
	22	Low	6:48 PM	0.5					
09/23									
W	23	High	1:11 AM	3.5	6:41 AM	Rise	11:57 AM		19
	23	Low	5:39 AM	2.5	6:47 PM	Set	9:51 PM		
	23	High	12:15 PM	5.3					
	23	Low	7:56 PM	0.8					
09/24									
Th	24	High	2:55 AM	3.1	6:41 AM	Rise	12:54 PM		28
	24	Low	5:59 AM	2.9	6:45 PM	Set	10:41 PM		
	24	High	1:03 PM	4.9					
	24	Low	9:25 PM	1.0					
09/25									
F	25	High	2:20 PM	4.5	6:42 AM	Rise	1:45 PM		37
	25	Low	10:57 PM	1.0	6:44 PM	Set	11:36 PM		
09/26									
Sa	26	High	7:13 AM	3.6	6:43 AM	Rise	2:30 PM		47
	26	Low	10:17 AM	3.4	6:42 PM				
	26	High	4:08 PM	4.4					
09/27									
Su	27	Low	12:02 AM	0.8	6:43 AM	Set	12:32 AM		56
	27	High	7:25 AM	3.8	6:41 PM	Rise	3:09 PM		
	27	Low	11:55 AM	3.1					
	27	High	5:30 PM	4.5					
09/28									
M	28	Low	12:47 AM	0.6	6:44 AM	Set	1:29 AM		65
	28	High	7:40 AM	4.1	6:40 PM	Rise	3:43 PM		
	28	Low	12:42 PM	2.6					
	28	High	6:25 PM	4.8					
09/29									
Tu	29	Low	1:20 AM	0.5	6:45 AM	Set	2:25 AM		74
	29	High	7:55 AM	4.3	6:38 PM	Rise	4:13 PM		
	29	Low	1:18 PM	2.3					
	29	High	7:08 PM	5.0					
09/30									
W	30	Low	1:47 AM	0.5	6:46 AM	Set	3:22 AM		82
	30	High	8:11 AM	4.6	6:37 PM	Rise	4:41 PM		
	30	Low	1:49 PM	1.8					
	30	High	7:45 PM	5.1					
10/01									
Th	1	Low	2:11 AM	0.5	6:46 AM	Set	4:19 AM		89
	1	High	8:28 AM	4.9	6:36 PM	Rise	5:08 PM		
	1	Low	2:20 PM	1.3					
	1	High	8:20 PM	5.1					
10/02									
F	2	Low	2:33 AM	0.6	6:47 AM	Set	5:16 AM		94
	2	High	8:47 AM	5.2	6:34 PM	Rise	5:35 PM		
	2	Low	2:52 PM	0.9					
	2	High	8:55 PM	5.0					
10/03									
Sa	3	Low	2:56 AM	0.8	6:48 AM	Set	6:14 AM		98
	3	High	9:07 AM	5.5	6:33 PM	Rise	6:03 PM		

	3	Low	3:25 PM	0.5					
	3	High	9:31 PM	4.8					
10/04									
Su	4	Low	3:18 AM	1.1	6:48 AM	Set	7:15 AM		99
	4	High	9:30 AM	5.8	6:32 PM	Rise	6:34 PM		
	4	Low	4:00 PM	0.3					
	4	High	10:10 PM	4.6					
10/05									
M	5	Low	3:42 AM	1.4	6:49 AM	Set	8:18 AM		99
	5	High	9:55 AM	5.9	6:30 PM	Rise	7:08 PM		
	5	Low	4:39 PM	0.1					
	5	High	10:52 PM	4.2					
10/06									
Tu	6	Low	4:06 AM	1.8	6:50 AM	Set	9:23 AM		97
	6	High	10:24 AM	6.0	6:29 PM	Rise	7:48 PM		
	6	Low	5:24 PM	0.1					
	6	High	11:42 PM	3.8					
10/07									
W	7	Low	4:31 AM	2.1	6:51 AM	Set	10:30 AM		92
	7	High	10:58 AM	6.0	6:28 PM	Rise	8:35 PM		
	7	Low	6:16 PM	0.1					
10/08									
Th	8	High	12:46 AM	3.4	6:51 AM	Set	11:35 AM		85
	8	Low	4:59 AM	2.5	6:26 PM	Rise	9:30 PM		
	8	High	11:39 AM	5.8					
	8	Low	7:22 PM	0.3					
10/09									
F	9	High	2:25 AM	3.1	6:52 AM	Set	12:36 PM		76
	9	Low	5:32 AM	2.8	6:25 PM	Rise	10:32 PM		
	9	High	12:33 PM	5.5					
	9	Low	8:44 PM	0.4					
10/10									
Sa	10	High	4:46 AM	3.3	6:53 AM	Set	1:30 PM		66
	10	Low	6:45 AM	3.2	6:24 PM	Rise	11:39 PM		
	10	High	1:52 PM	5.2					
	10	Low	10:09 PM	0.3					
10/11									
Su	11	High	5:52 AM	3.7	6:54 AM	Set	2:17 PM		55
	11	Low	9:28 AM	3.2	6:23 PM				
	11	High	3:32 PM	5.0					
	11	Low	11:18 PM	0.2					
10/12									
M	12	High	6:26 AM	4.1	6:54 AM	Rise	12:49 AM		44
	12	Low	11:15 AM	2.7	6:21 PM	Set	2:58 PM		
	12	High	5:02 PM	5.1					
10/13									
Tu	13	Low	12:10 AM	0.0	6:55 AM	Rise	1:58 AM		32
	13	High	6:55 AM	4.6	6:20 PM	Set	3:34 PM		
	13	Low	12:22 PM	2.1					
	13	High	6:12 PM	5.2					